

# THE CONTRACT JOURNAL

INCORPORATING

THE BRITISH CONSTRUCTIONAL ENGINEER AND THE CONTRACTOR

No. 4,237 82nd YEAR

THURSDAY, SEPTEMBER 8, 1960

PRICE 2/-

## THE **TOUGH** MACHINE



## FOR THE TOUGHEST CONDITIONS

Dumper conditions call for the finest construction. Not just sheer weight, of course, but strength at the points which only long experience reveals to the designer. Now in its eleventh year of continuous production, the Muir-Hill 14 B  $4\frac{1}{2}$  cu. yd. Dumper has proved itself more than equal to the worst conditions that exist.

Available in standard or quarry models with gravity or hydraulic tip, single or twin driving wheels, the 14 B will undoubtedly be your choice for difficult conditions.



**Muir-Hill**  
Regd.

**BUILT BY BOYDELL**

**$4\frac{1}{2}$  CU. YD. MODEL 14B DUMPER**

WRITE FOR FULL DETAILS

**BOYDELL & CO LTD • EAGLE WORKS • OLD TRAFFORD • MANCHESTER 16**

dmE8859

## *Dependability* in service



The task undertaken by this 19-RB diesel shovel is widening a mountain road in Norway; a high altitude job in tough and unusual conditions where dependability is of utmost importance.



# comes from *quality* of engineering

A manipulator, shown on the right, is being used to weld caterpillar frames and axles so that welds are made in the down-hand or gravity position which is necessary to ensure their soundness.

Processes like this give Ruston-Bucyrus equipment its reputation for dependability in service.



RUSTON-BUCYRUS LIMITED, EXCAVATOR SPECIALISTS, LINCOLN

Sales and Service Depots at Warrington and Taunton  
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# INTERNATIONAL with ROLLS-ROYCE **POWER!** *THE WORLD'S FINEST CRAWLER TRACTOR*



\* *FASTER CYCLES*  
\* *GREATER OUTPUT*

**BRITISH BUILT  
INTERNATIONAL  
BTD 20**

May we arrange  
a demonstration  
for you?

Powered by a Rolls-Royce  
124 b.h.p. diesel engine.  
Fully reversible transmission: —  
6 forward—6 reverse speeds

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#### Primary Rock Crushing Plant

Completely mobile, rapidly set-up on site, the 'Rock Ranger' is ruggedly constructed to stand up to high pressure work producing an 'all-in' material from large size lump rock. Available with six alternative sizes of Parker 'Rocksizer' Crushers to give outputs up to 120 tons an hour; or it can be teamed with a 'Crush Ranger' for producing two or three separate products for roadstone or concrete aggregate. Fast to the job—fast into action—tough and flexible—Parker 'Ranger' Plants save time, transport and costs. Every plant is completely self-contained, yet can be teamed with each other to meet special needs or increase the scope.

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**REAL  
PRODUCTION**  
right where  
you want it  
**- FAST!**

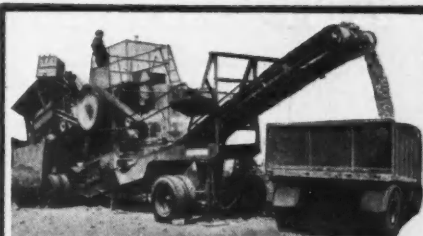


WRITE FOR  
DETAILS OF  
THE PLANTS  
THAT ARE  
**RIGHT**  
ON THE JOB!



#### 'CRUSH RANGER'

A rock or gravel crushing plant delivering screened material by side conveyors. Can give an 'all-in' material or up to three separate products. Outputs up to 180 tons an hour.



#### 'GRAVEL RANGER'

Single-pass gravel crushing and screening plant in 8 sizes giving mixed gravel and sand or sand, gravel, crushed gravel and sand... separately or mixed as required. Outputs up to 300 tons an hour.

FREDERICK

**PARKER**

LIMITED

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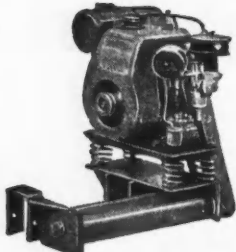

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those  
who  
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**WEAR THIS EMBLEM  
ON SATURDAY**

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 SATURDAY, SEPTEMBER 17th



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**SCAFFOLDING**  
 AND MATERIAL & LABOUR SAVING  
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# BENFORD

a name familiar  
to ALL on sites  
both large  
and small

## DIESEL DUMPERS

Benford Dumpers are labour saving, all-purpose carriers designed for every day use by all and sundry on the Building Site and despite adverse ground conditions.

They are made in four sizes — 15 cwt., 23 cwt., 30 cwt. and 35 cwt.—and are built to work with and take the full batch from concrete mixers ranging in size from 5/3½ to 21/14.

Normal standard equipment is a gravity tipping skip.

Alternatively they can be fitted with special Benford roll-over crane skips which the dumpers can pick up and put down without the driver leaving his seat.

For details send for list 6017 — it is full of information.

## REVERSING DRUM MIXERS

Made in two sizes 18/12 and 10/7, each with everything the Contractor has ever wanted in a closed drum mixer.

Built-in Scraper Shovel for quick, economical loading!

Built-in Batch Weigher that really works!

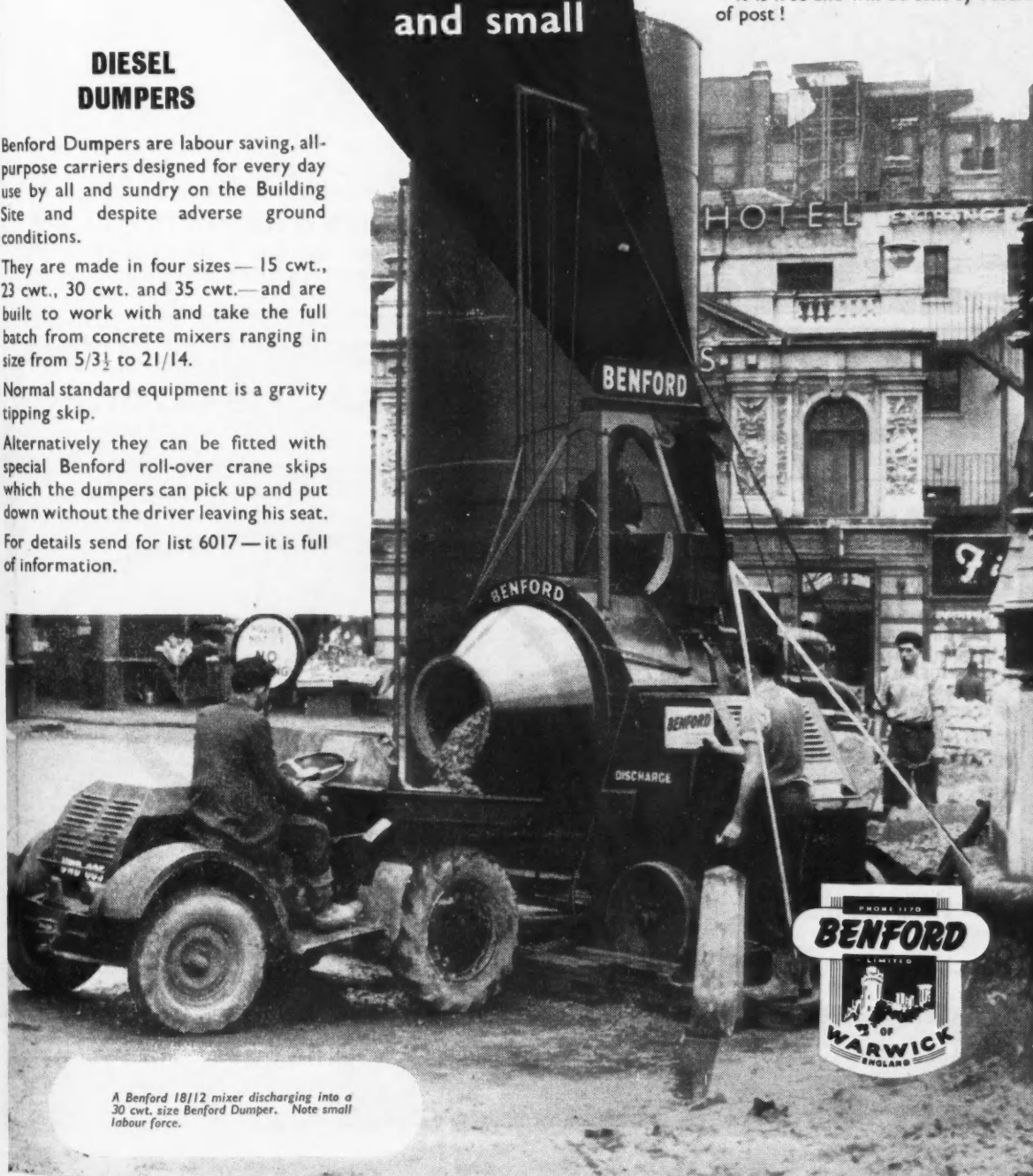
Aggregate Feed Apron to keep aggregates separate and guide Shovel to the right point every time!

Self clean non-clog drum that will mix wet or very dry concrete!

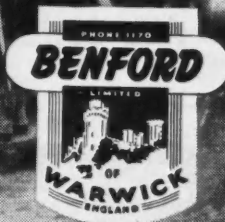
Accurate measuring water tank that can be relied on whether the quantity required is large or small.

Hydraulically lifted loader — no topshaft, no wire ropes, no clutches.

Send for list 6019 and full particulars — it is free and will be sent by return of post!



A Benford 18/12 mixer discharging into a 30 cwt. size Benford Dumper. Note small labour force.



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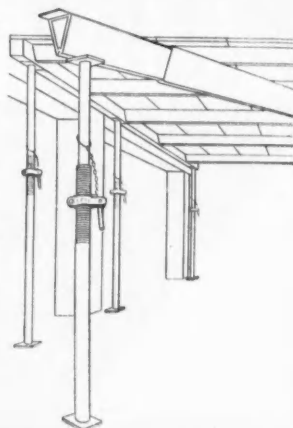
## SHORING PROPS

### SALE OR HIRE

Size	Closed	Extended
0...	3' 5"	6' 0"
1...	5' 9"	10' 3"
2...	6' 7"	11' 0"
3...	8' 6"	13' 0"
4...	10' 6"	16' 0"

ALL SIZES EX STOCK  
SUBJECT TO BEING  
UNSOLD

AB SHORES HAVE  
PROVED STRONG  
AND RELIABLE OVER  
MANY YEARS'  
CONSTANT USE



## TRENCH STRUTS

### SALE OR HIRE

Size	Closed	Extended
0...	1' 0"	1' 6"
1...	1' 6"	2' 3"
2...	2' 4"	3' 6"
3...	3' 4"	5' 6"

ALL SIZES EX STOCK

A robust and adjustable strut with sliding inner tube incorporating locking device, the end plates raised at corners to allow non-slip grip. When compared with the use of timber, these struts will save their cost many times over and last for many years.

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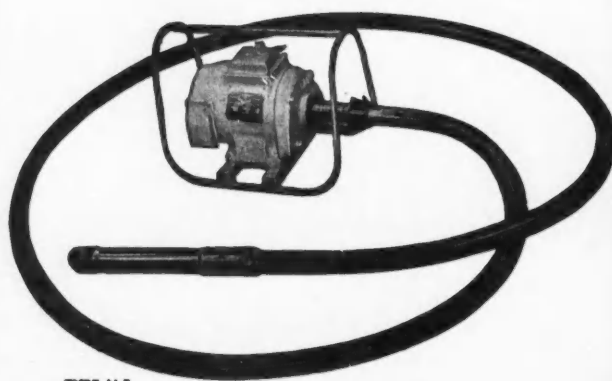
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### FOR BETTER CONCRETE

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COMPLETE MACHINE CAN BE LIFTED BY  
ONE MAN

MOTOR MAY BE HUNG OR  
STOOD AT ANY ANGLE  
**FOR ALL CONCRETE WORK**



TYPE H.F.

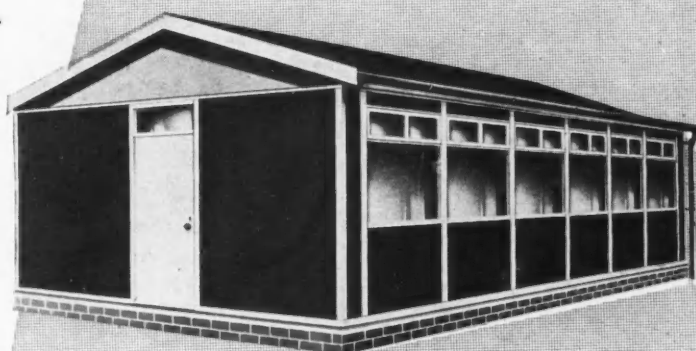
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# HARDUN'S

## PORTABLE TIMBER BUILDINGS



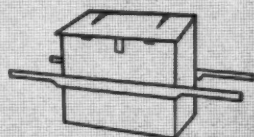
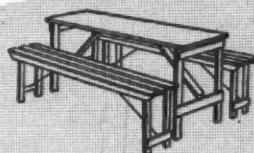
HARDUN'S specialise in a range of Portable Buildings from Foremens Site Cabins, which can be obtained from stock, to large modern Offices constructed from Western Red Cedar or Resin Bonded Plywood, as illustrated.

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HARDUN'S Mobile Site Offices are specially designed for Public Works Contractors and can be fitted with desks, Plan Chests and provided with heating and lighting or can be fitted out for sleeping accommodation.

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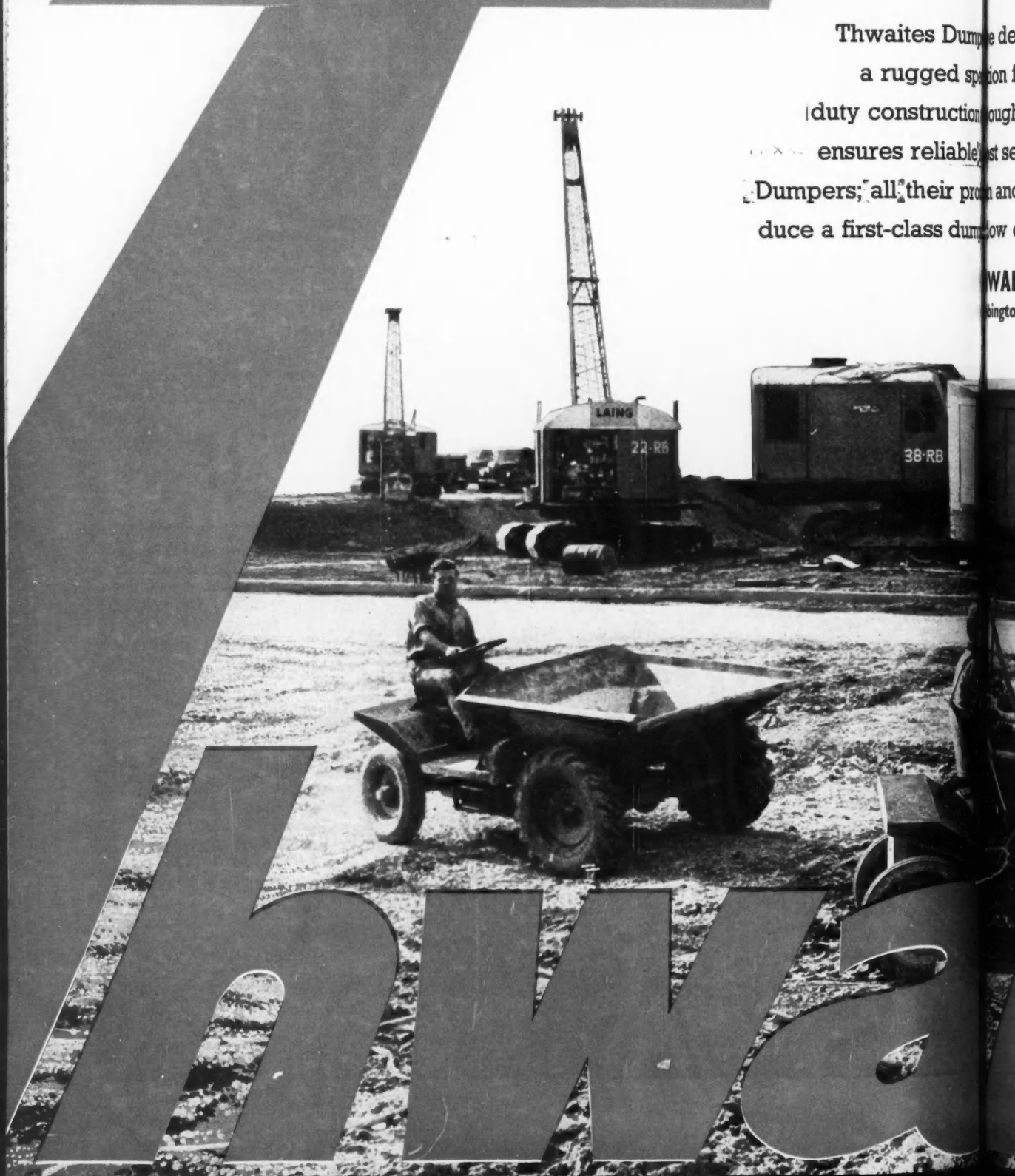
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*the answer in one word... to lasting*

Thwaites Dumpers deliver  
a rugged spacious  
heavy-duty construction  
ensures reliable  
Dumpers; all their power and  
duce a first-class dumper

WAL  
bington



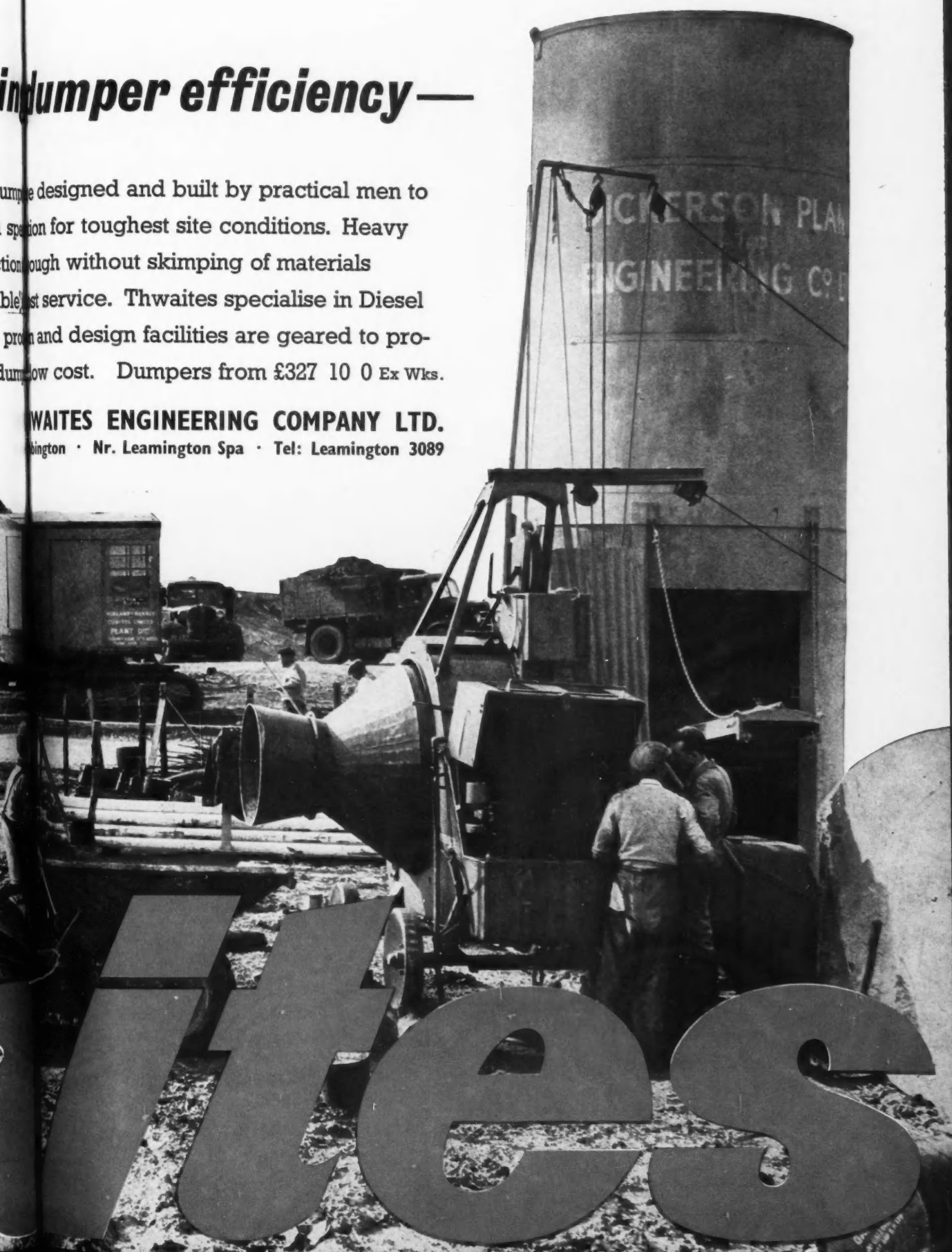


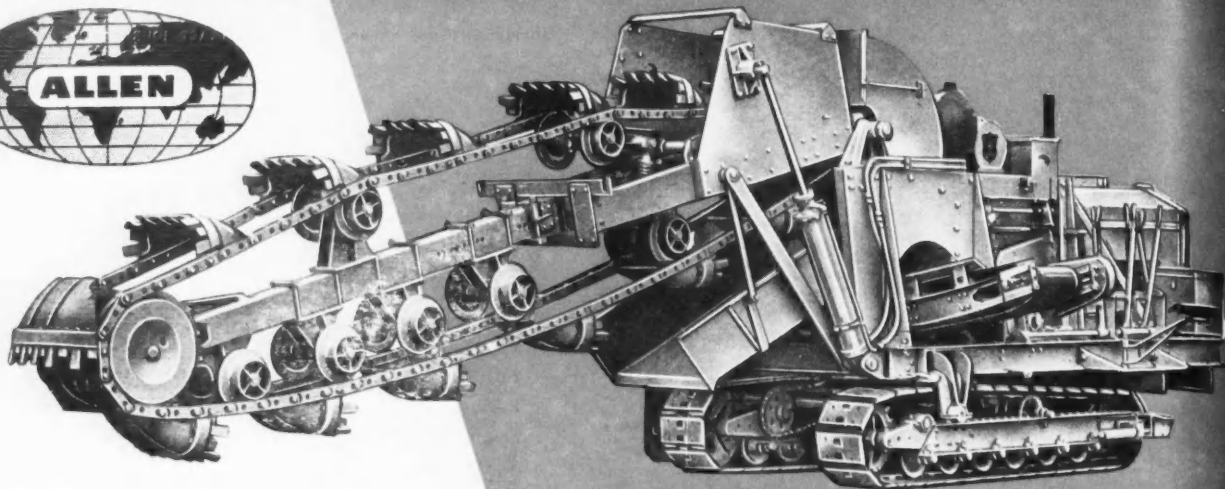
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umpers designed and built by practical men to  
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# Right on the job

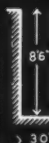
Ideal for smaller trenches, 2 in. to 21 in. wide, down to 6 ft. deep, for water, gas, electricity, and telephone services.

**12-21**



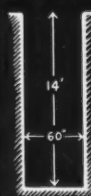
The versatile medium-size machine in the ALLEN range. Will dig from 14 in. to 30 in. wide, to a maximum depth of 8 ft. 6 in.

**14-30**



This renowned model will take out trenches from 15½ in. to 5 ft. wide, down to 14 ft. deep, for mains and sewers.

**16-60**



Whenever there's trenching to be done, the name ALLEN is the first that comes to mind. There is an ALLEN Trencher for every job — all rugged, dependable machines that leading contractors know have proved themselves the world over for digging clean, fast, precise trenches.

British-built and best, ALLEN Trenchers have been getting "down to earth" for over thirty years — digging day-in, day-out, in all types of soil.

## Get to know the

# ALLEN

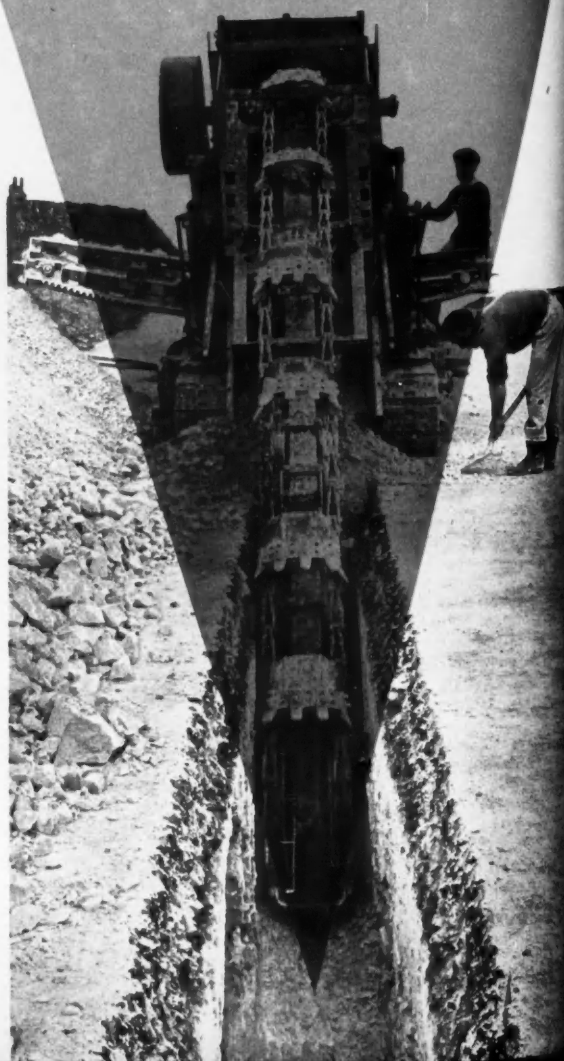
*range*

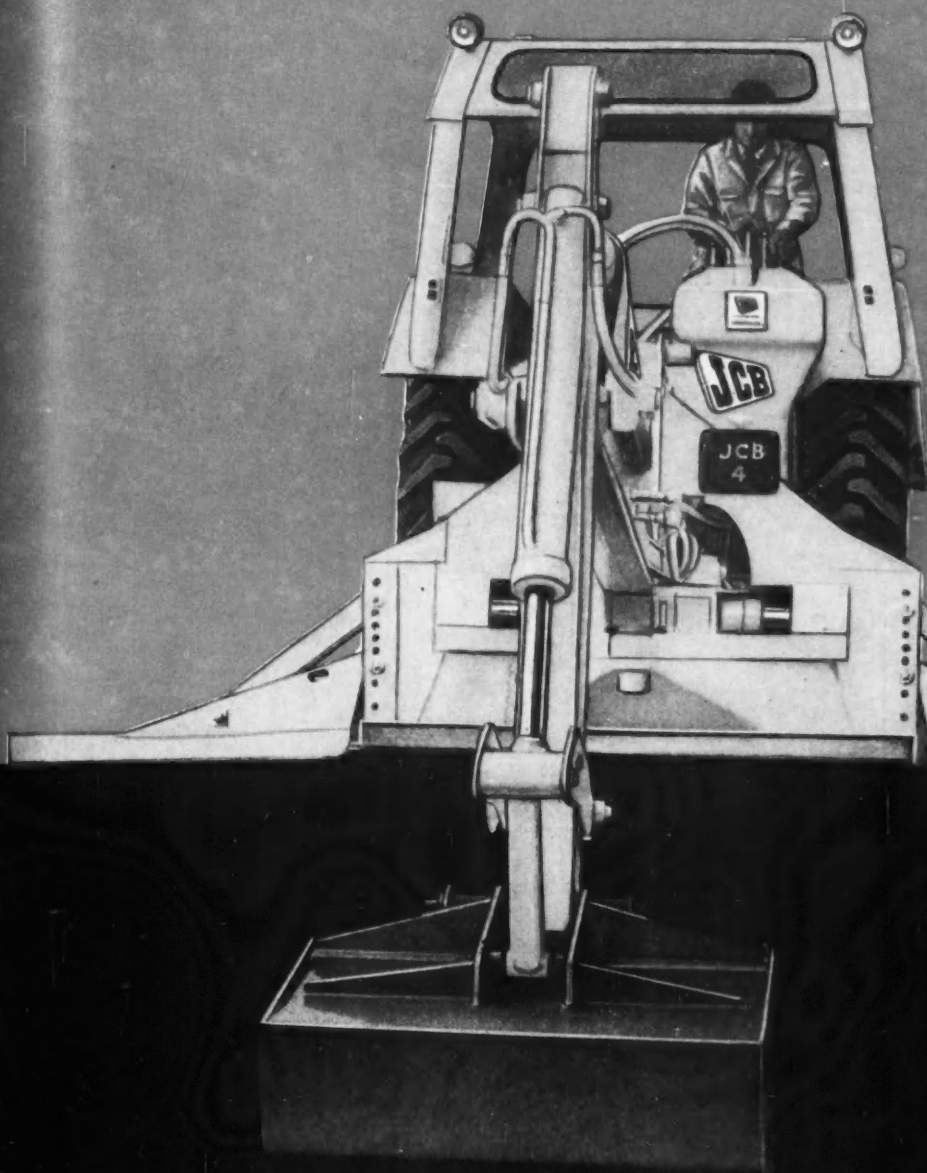
Full details from the manufacturers

**JOHN ALLEN & SONS (OXFORD) LTD**

COWLEY, OXFORD

Tel: 77155/7



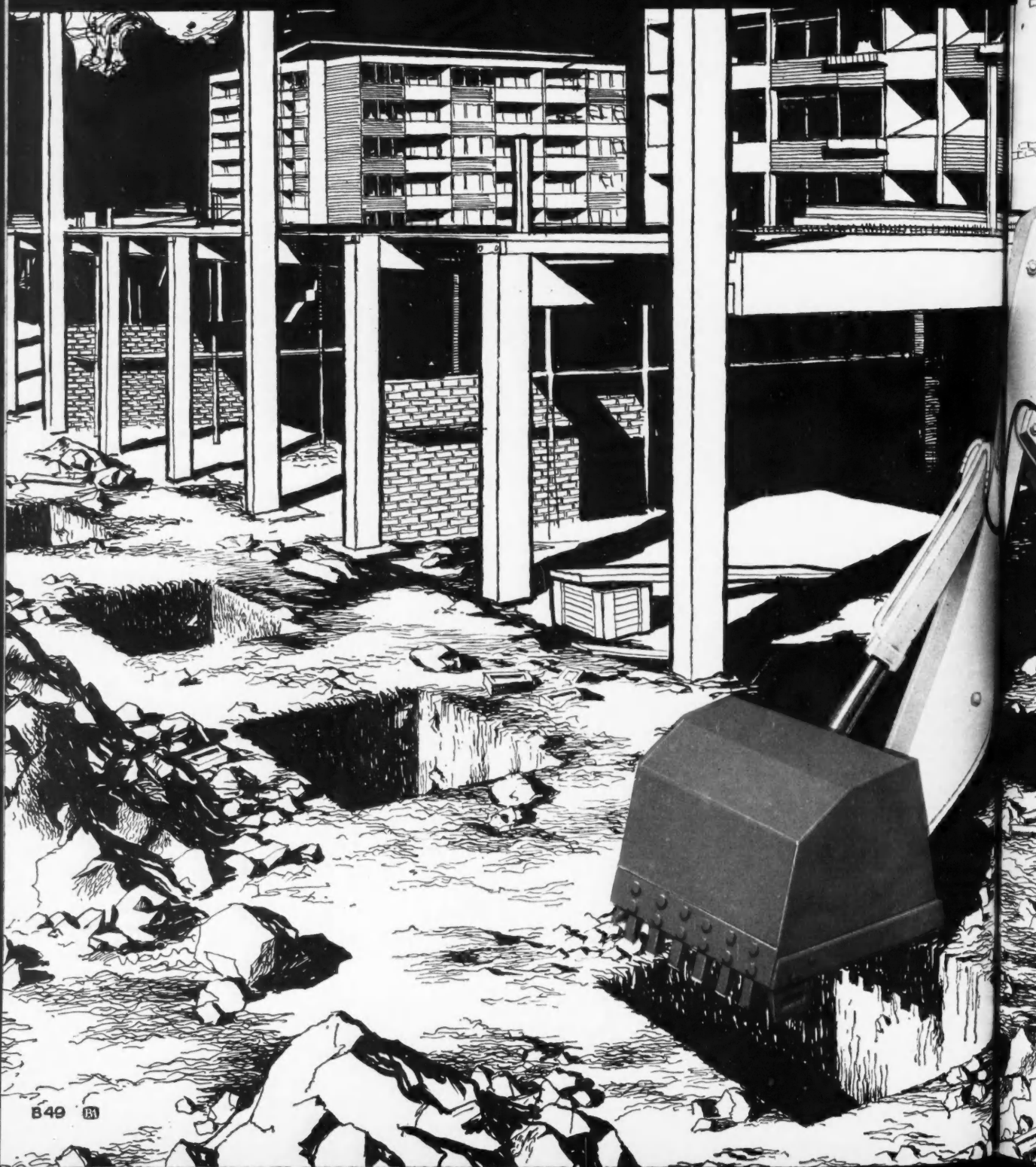


**THE ANSWER  
TO ALL YOUR  
EARTHMOVING  
PROBLEMS**

**THE NEW JCB 4**



# SQUARE HOLES with the







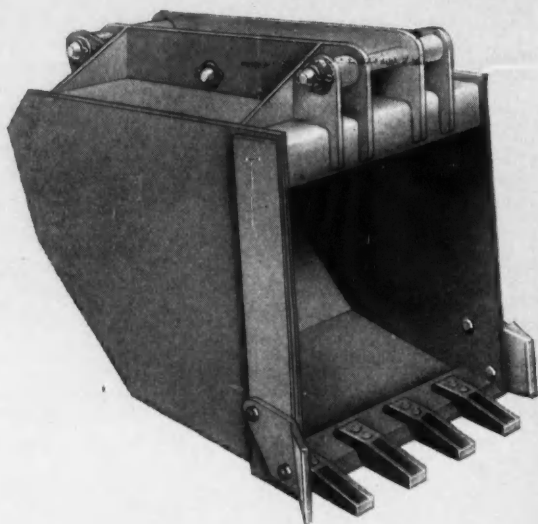
**SQUARE HOLES 15 FT. DEEP  
WITH ANY BUCKET**



**Rochester, Staffs 432**

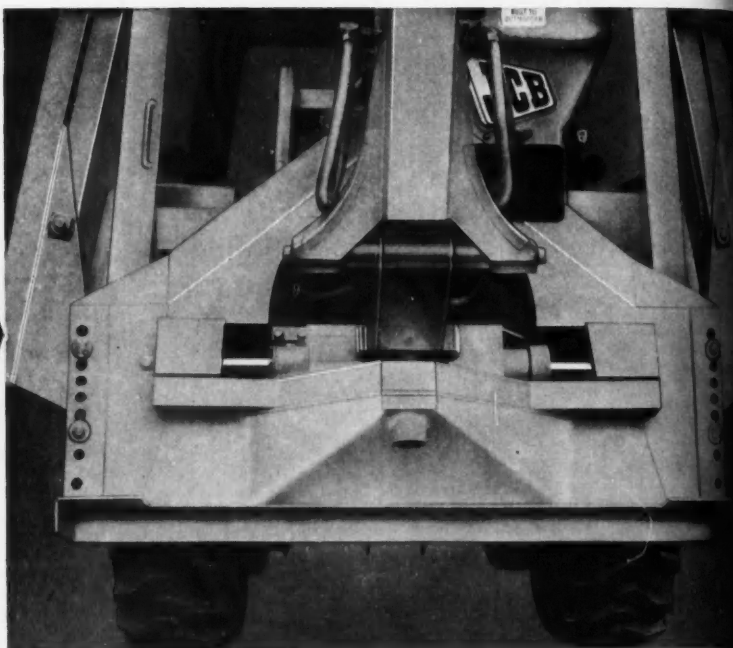
# '3 IN 1' BUCKET

BACK ACTER,  
FACE SHOVEL,  
SQUARE HOLER.



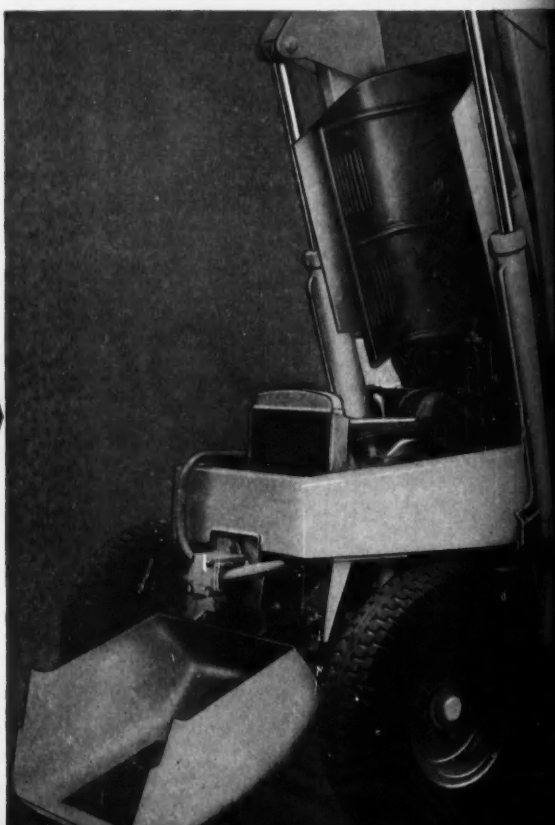
# GROUND CLEARANCE

21" GROUND CLEARANCE  
ensures ease of movement  
over boggy ground.



# ACCESSIBILITY

the whole power unit exposed by  
removing only two nuts.



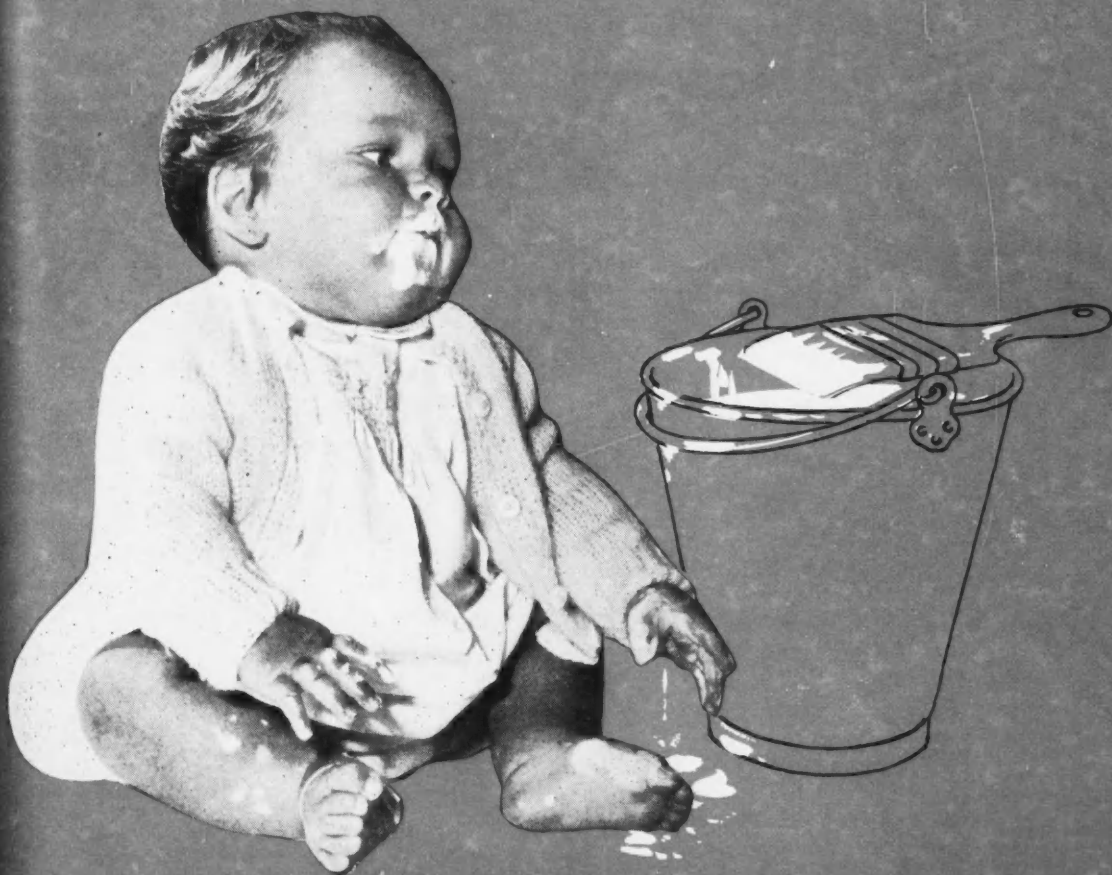
ROCESTER • STAFFS • 432











### ANY MOMENT NOW . . .

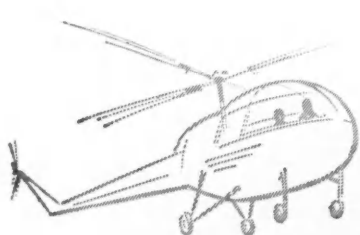
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10-40 cwt. 150/225 ft. min.	
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Capacity 10 cwt.	
<b>SAGA JUNIOR &amp; SCAFFOLD JIB CRANE</b>	Brochure <b>A 1</b>
Capacity up to 5 cwt.	
<b>SAGA POWER WINCHES</b>	Brochure <b>C 1</b>
Diesel or Electric.	

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# SOME EXAMPLES OF FINE TIMBER BUILDINGS

Pavilions

Clubs

Schools

Libraries

Shops

Hospitals

Offices

Canteens

Showrooms

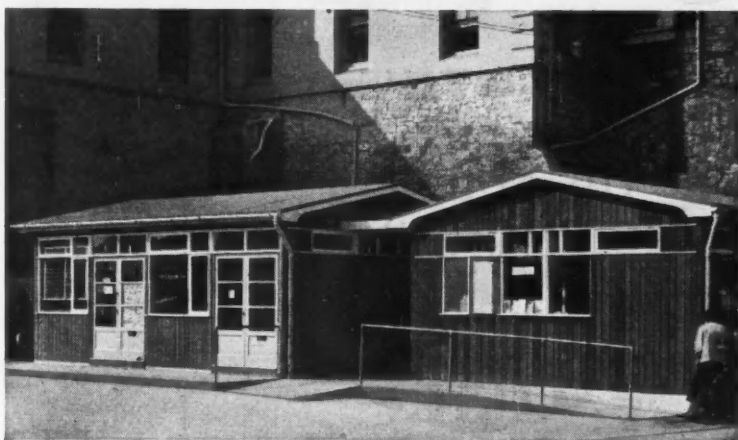
Estate Offices

Full details of these buildings, and all Thorns building systems, are shown in their New Catalogue which is unique, in that it gives at a glance, sizes, prices, plans and specifications. It is available, free, to bona fide enquirers.



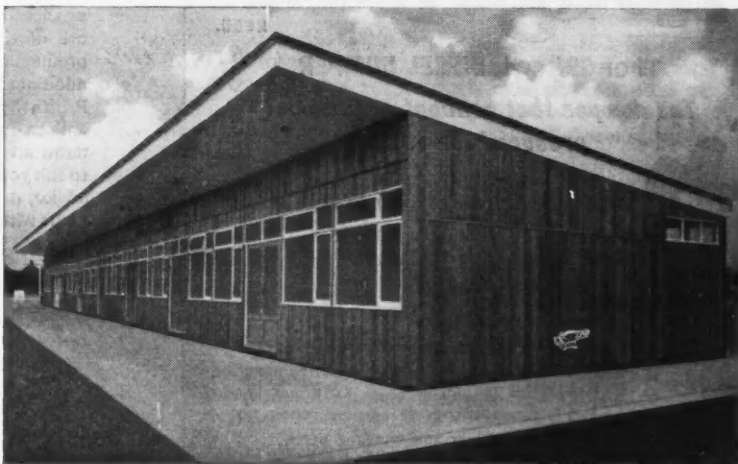
CLUB HOUSE 80' x 40'.

Photograph by courtesy of Harts Holiday Club, Leysdown, Isle of Sheppey.



TEMPORARY SHOPS.

Photograph by courtesy of The City Architect, City of Exeter.



TEMPORARY SERVICES BLOCK 150' x 30' FOR SALISBURY CATTLE MARKET.

Photograph by courtesy of The City Engineer, City of New Sarum.

PRE-FABRICATED BY

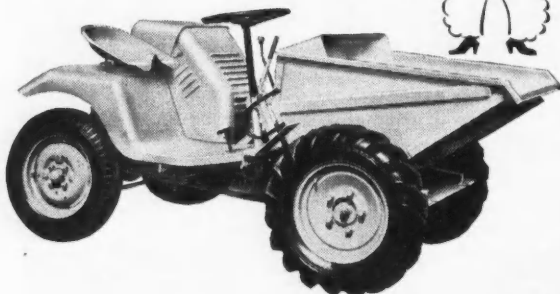
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**A REAL SMOOTH BRONC  
- IT DON'T EVEN SPILL  
MAH CRINK !**



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THE ROUGH  
SMOOTHLY  
IN A



**'Roughrider'**  
REGD.

**15 or 22½ cwt. DIESEL DUMPER**

*The dumper that brilliant engineering  
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**THESE POINTS MAKE IT THE BEST OF ALL . .**

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- Small turning circle makes it the ideal machine for narrow roads.
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- Height of skip gives easy loading from the mixer.
- Low centre of gravity enables the Roughrider to operate under extremely adverse conditions.
- Guards protect driver and working parts.
- Fully floating rear axle.
- Patented two-position skip.

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Please send full details of the Liner 'Roughrider'

NAME .....

ADDRESS .....

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to use Hire Purchase for  
my new machinery?"**

Of course it is ! The economical terms offered by the British Wagon Company Limited make the use of their finance plan a really practical and profitable proposition for the acquisition of additional or replacement machinery. The British Wagon Company Limited can provide the answer to your own particular problem. Their terms are extremely flexible and can be arranged to suit your individual requirements. Confidential advice, drawn from over 90 years experience, is yours without obligation from any of their branches.

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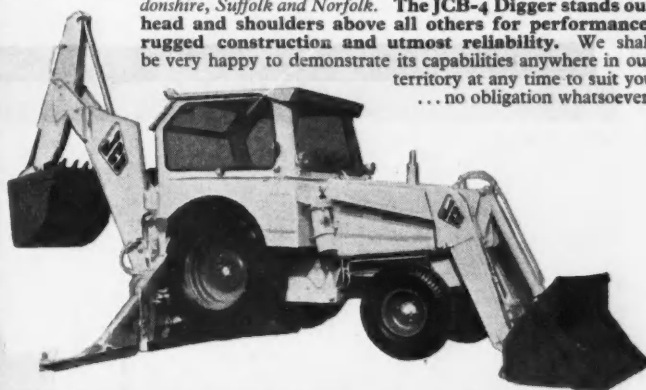
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Controlled from the two focal points of London and Ulting, Essex, we are the Sole Distributors of the **JCB-4** in the following territory: *London, Middlesex, Surrey, Essex, Hertfordshire, Bedfordshire, East Sussex, Kent, Cambridgeshire, Huntingdonshire, Suffolk and Norfolk.* The **JCB-4** Digger stands out head and shoulders above all others for performance, rugged construction and utmost reliability. We shall be very happy to demonstrate its capabilities anywhere in our territory at any time to suit you ... no obligation whatsoever.



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Distributors for **LONDON** and 14 counties.

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Cheapest first cost... cheapest spares. Made by the diesel dumper specialists. The new 15 cwt. 'Nimbus' T.3. beats them all! With a heaped capacity of 22 cu. ft., a speed of 9/12 m.p.h., heavy duty 3-speed constant mesh change-on-the-move gearbox, etc. It cuts costs with every load.



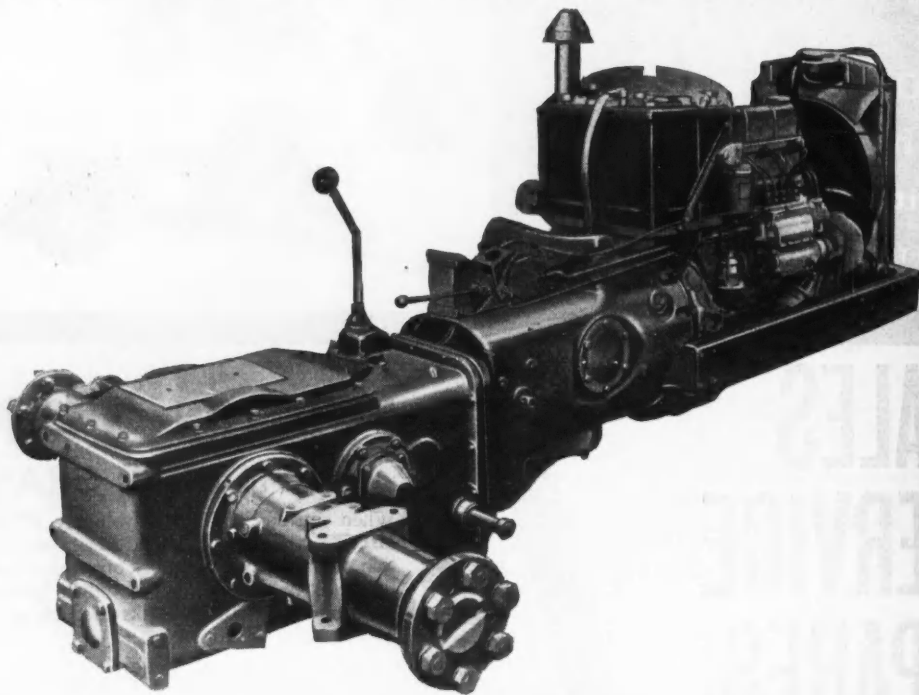
DISTRIBUTORS FOR THE JCB-4 HYDRAULIC EXCAVATOR AND JCB 4L LOADING SHOVEL · BRAY HYDRAULIC LOADING SHOVELS · SHAWNEE-POOLE REAR DUMPS · TRACK MARSHALL ANGLED OZERS · WALKER-DOE DITCHERS · THWAITES DUMPERS · COUNTY ANGLED OZERS · FORDSON POWER MAJOR AND DEXTA TRACTORS · DOE-MUREX WELDERS · PARKER CONCRETE MIXERS · HOLMAN COMPRESSORS · ROTARY HOE TRENCHERS · PETTER ENGINES · ARPS TRENCHERS · ROBOT EARTH BORERS · FIAT CRAWLER LOADERS · TUNNY CRANES · JOHN DEERE SHOVELS AND BULLDOZERS



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## INCREASES YOUR OUTPUT

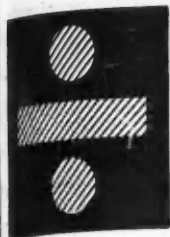
You'll have more power to push your work ahead when your equipment is based on Fordson units. Test figures show it; world-wide experience in the toughest conditions has proved it. Insist on Fordson Power \* whenever you're buying equipment. It's your sure way to faster, more effective work cycles, to increased, more profitable output.



# FORDSON POWER \*

## REDUCES YOUR COSTS

You begin saving from the day you buy Fordson-powered equipment. Ford's quality, volume production in the great Dagenham Works cuts your capital outlay. Fordson Power \* is the lowest cost diesel power in the world and keeps your running costs down to a minimum. Fordson design gives you simple, low-cost maintenance backed by a world-wide dealer and spares service.



# FORDSON POWER \*

When your equipment is Fordson-powered \* you can work round the clock in the toughest conditions, confident that your plant has the robust reliability to take punishing tasks in its stride, without hold-ups and idle time. Manufacturers have recognised this, and so you have a bigger choice of better equipment based on Fordson power than on any other unit.

## DIVIDES YOUR HOLD-UPS

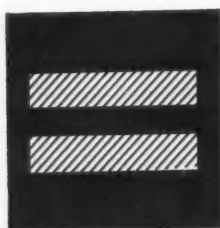


Roadless 4 wheel drive and 'dozer



County Crawler and 'dozer





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## SOLVES YOUR SITE PROBLEMS

Solve your problems of maintaining high outputs by using only equipment harnessed to reliable Fordson Power. \* That way you are insuring against schedule-breaking hold-ups; ensuring maximum production on all operations. More equipment is made with Fordson Power than any other—you've a wonderful range to choose from. And when it's got Fordson Power you know it's good.



Shawnee Poole Dumper

Howard Stabilizer



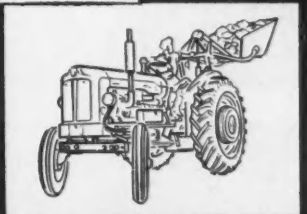
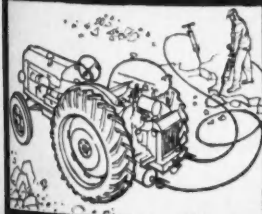
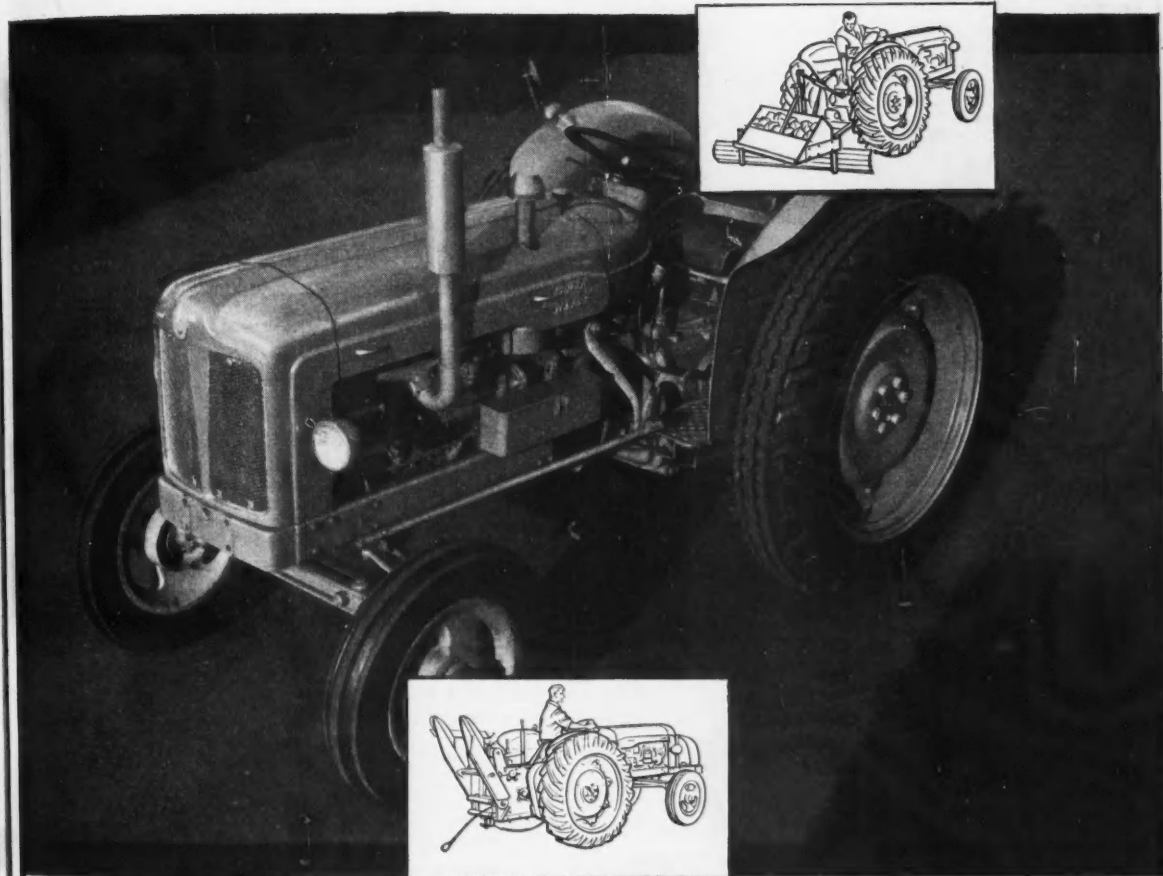
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TRACTOR DIVISION

FORD MOTOR COMPANY LIMITED DAGENHAM ESSEX

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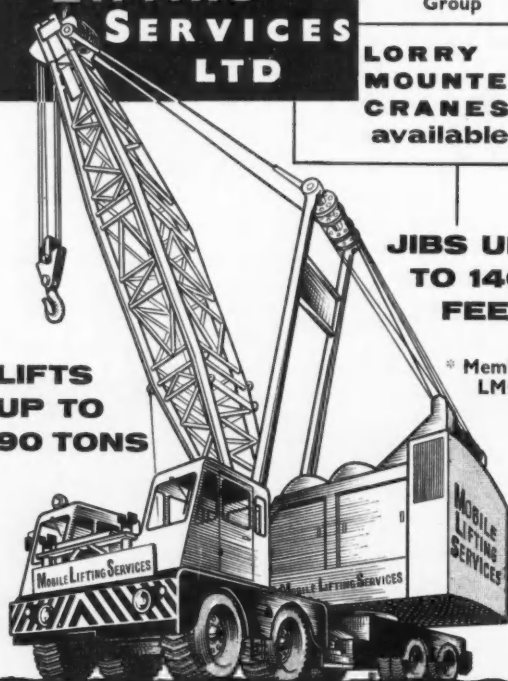
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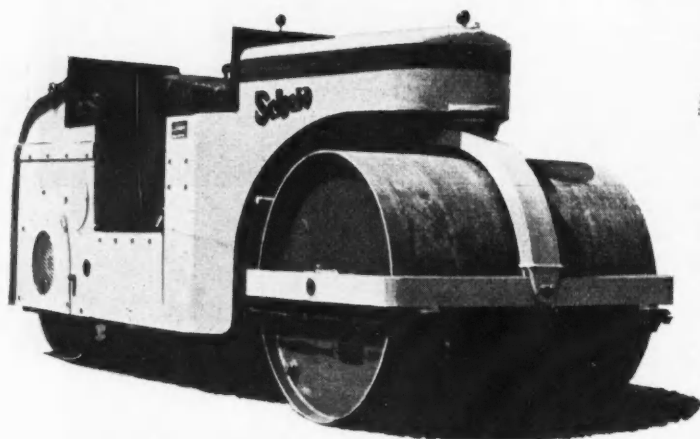
# What is GRADE ability?

See the colour advertisement  
on page iia, iiii.

# Scheid

## VIBRATING TANDEM ROLLERS

HIGH COMPACTING POWER  
LOW OPERATING COST



WELL PROVED THROUGHOUT EUROPE AND IN  
MANY OVERSEAS TERRITORIES  
TWO MODELS AVAILABLE.

### SPECIFICATION

	TYPE 20.0	TYPE 25.0
Working weight	4400 lbs.	9500 lbs.
With water ballast	5000 lbs.	11000 lbs.
Rolling width	35½"	43½"
Outside turning rad.	10'	14'
Total height	3'4"	5'1"
Total length	9'8"	12'6"
Total width	3'8"	47"

air cooled diesel engine electrically started  
spring adjusted scrapers vertically directed vibrations  
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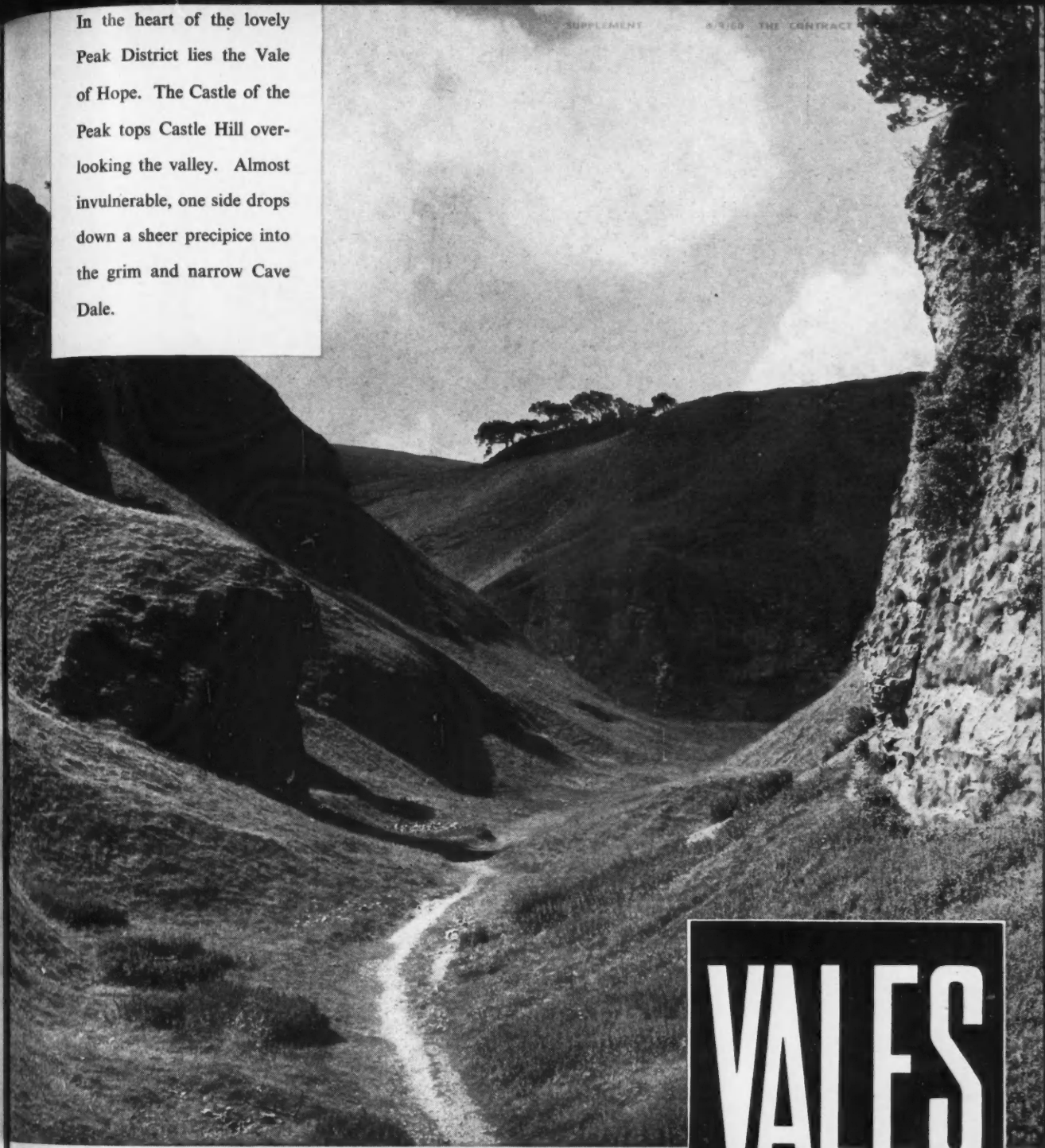
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### Vales of England

*The Vale of Hope, Derbyshire*

One wonders what the folk who named this beautiful vale in years gone by were 'hoping' for. Today, we hope you will bear in mind that when thinking of PLANT HIRE ... the 'Vale' to remember is



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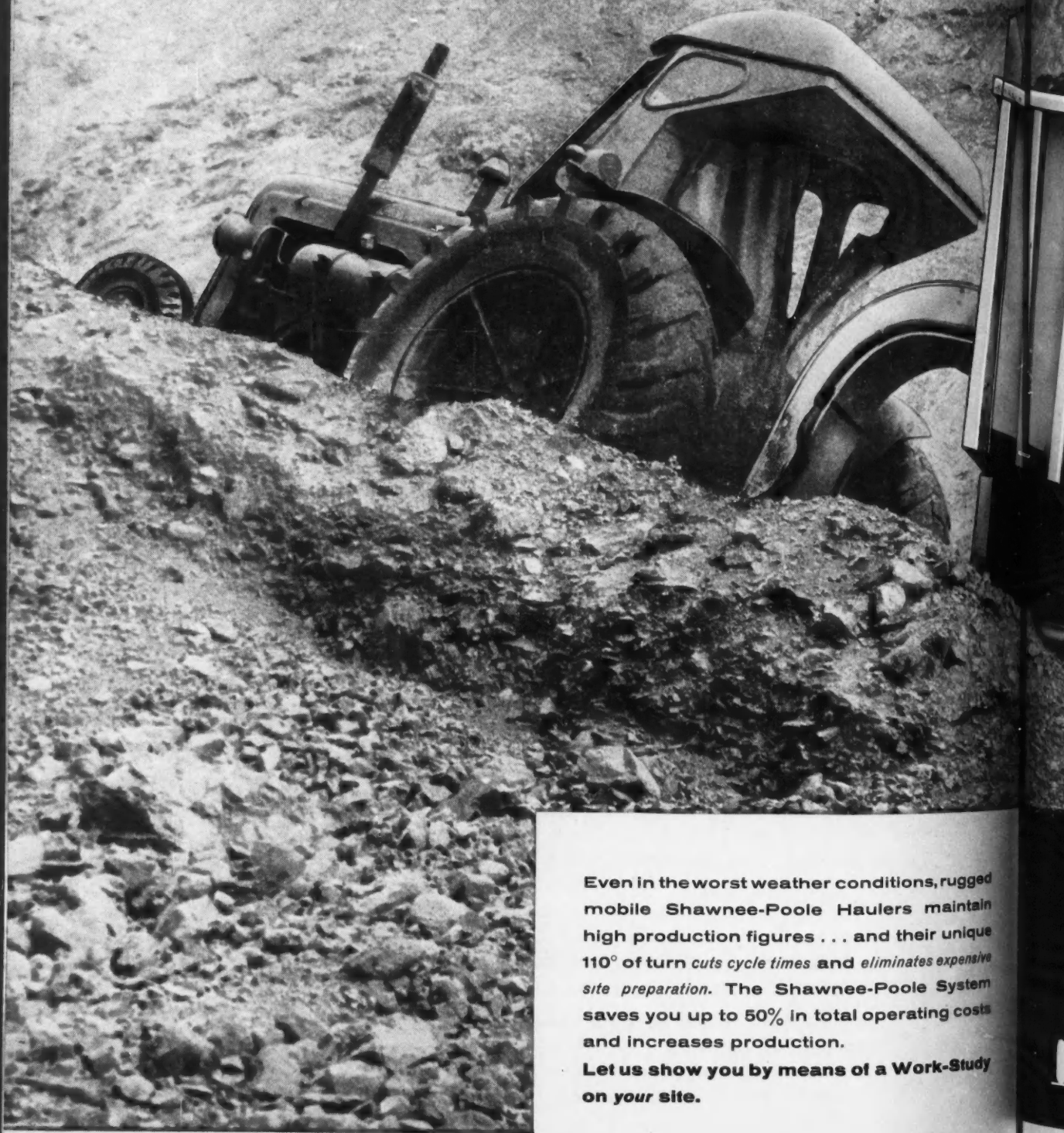
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Even in the worst weather conditions, rugged mobile Shawnee-Poole Haulers maintain high production figures . . . and their unique 110° of turn cuts cycle times and eliminates expensive site preparation. The Shawnee-Poole System saves you up to 50% in total operating costs and increases production.

Let us show you by means of a Work-Study on your site.



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*System of*  
**MOBILITY AND  
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HAULAGE**

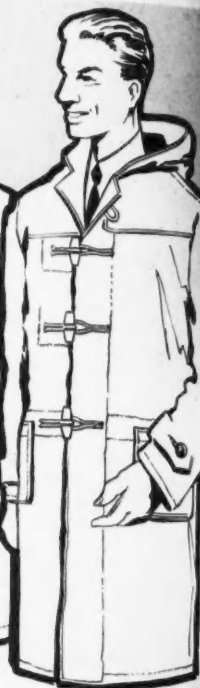


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**C.E.M. DAY LTD.** Tractor and Industrial Division, 161, Gower Road, Swansea. Tel. 22438 & 24669

**J.A. STEWART (PLANT) LTD.** Milnbank Works, Townmill Road, Glasgow E.1. Tel. Bridgeton 4441

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This map illustrates the extensive coverage of the Caterpillar Dealerships in Great Britain and Eire—and these are the officially appointed Cat Dealers

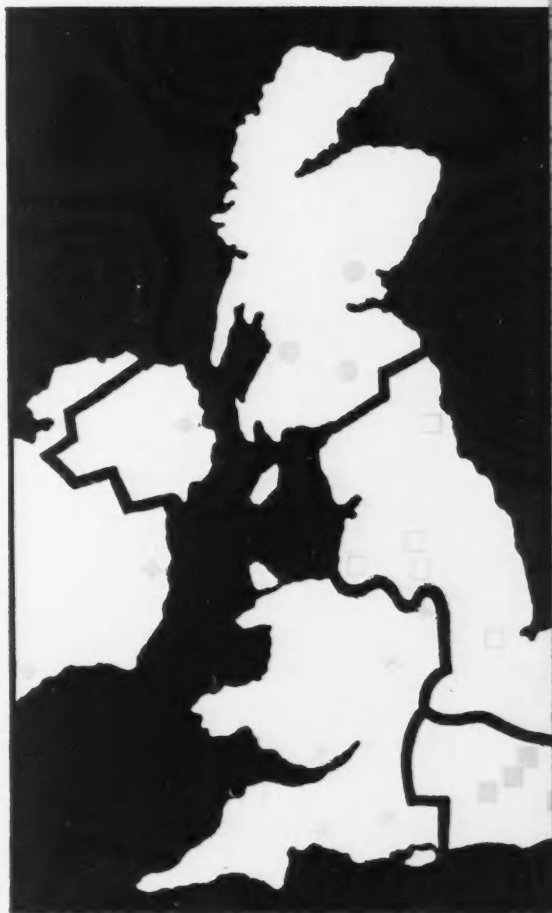
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**S. McCormick Ltd**  
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**Fred Myers Ltd**  
London. Windsor  
Ashford. Brentwood



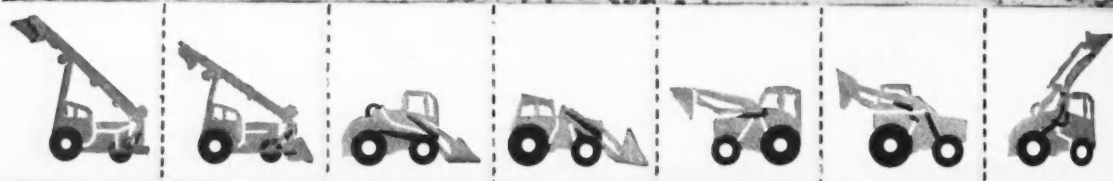
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*Let us show you the Merton Frontloader on your own ground, on the job it will have to do. When you really get down to choosing —*

see the **Merton**  
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**MOBILE LIVING UNITS AND OFFICES** built to specification for Home and Overseas contracts. Write TRAILER HOMES, LTD., Shannon Corner Kingston By-pass, New Malden, Surrey.

**WANTED: CORRUGATED STEEL SHEETS.** Second-hand. Any area. Sites cleared. Prompt payment.—J. DUFFY, Bank Street, Clayton, Manchester, 11. Telephone: East 3361.

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**SECOND-HAND SECTIONAL TIMBER BUILDINGS,** 24ft. x 12ft., £102; 30ft. x 15ft., £128; 40ft. x 18ft., £192; 60ft. x 20ft., £302. Floors extra. Delivery included 100 miles. Also similar New Buildings. Lists.—UNIVERSAL SUPPLIES, Crabtree Manorway, Belvedere, Kent. Tel.: Erith 32948.

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10in. Tube in lengths up to 40ft.  
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18in. Tube in lengths up to 25ft.  
20in. Tube in lengths up to 20ft.

All of these sizes can be supplied plain ends or flanged. Also in stock a quantity of 24in. Tube, flanged in lengths of approximately 24ft.

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FROM STOCK  
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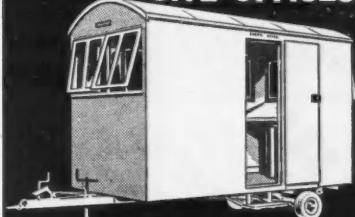
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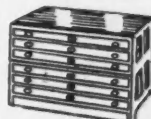


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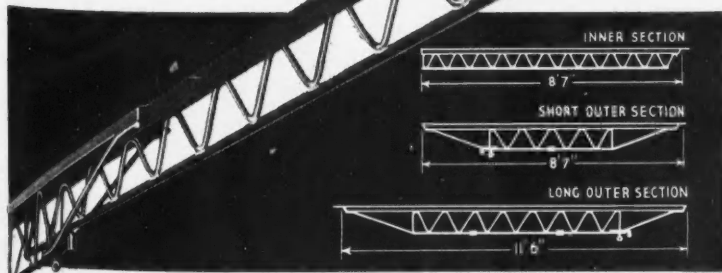
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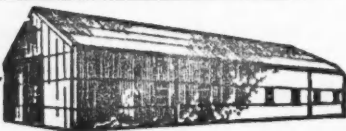
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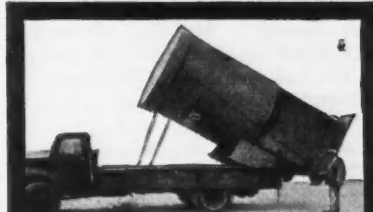
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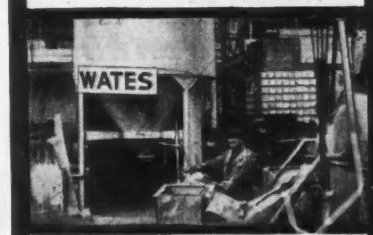
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ANDERSON-GRICE 5-ton 2-motor Electric DERRICKS, 100ft. Jibs, new 1947 and 1949, £1,500 and £2,450, respectively.  
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ANDERSON 10-ton Steam DERRICK, 120ft. Jib, good condition, £2,850.  
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 One Climax Portable, Perkins P4, four solids, £300.  
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Fowler Steam Roller, 10-ton compound, with Allen Scarifier, has good firebox and tubes, rolls steel-plated, 2½in. thick. Aveling-Barford DX 8-ton, with Ruston Diesel Engine. Ditto DX 6-ton. Footpath Roller 50cwt., with Ruston 2YB Diesel Engine. Greens PRR Footpath, 30cwt., 1954. — **M. COLE, Eastgate, Sleaford, Lincs.** Tel. 463.

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 7/5 Winget MIXER, 1955, Lister Diesel, good condition, £85.  
 5/3½ Winget MIXER, 1955, Lister Diesel, good condition, £65.  
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Reavell Model DSAGE, 108 c.f.m. at 100lb. p.s.i., with 22-h.p. motor, 400/3/50, all on C.I. bed, £250.

Two 10ft. x 4ft. Vertical 3-in. plate Air Receivers, £185 each.

Two Reavell 3-stage High Pressure Petrol driven Sets, suitable aqualung bottles, £100 each.

Two Broomwade Portable SVD1, Lister 3-cyl. Diesel Engine, four solid rubber wheels, £250 each.

One Broomwade Portable SVD1, Lister 3-cyl. Diesel, four pneumatics, £375.

One Climax Portable, Perkins P4, four solids, £300.

Two C.P.T. Single-tool Portables, Ruston Diesel, pneumatic 2-wheel trailer type, £285 each.

One Holman Tractair 2-Tool on Fordson Major, Diesel, first-class unit, £650.

One Bristol 30 c.f.m., Electric, 400/3/50, 7.5 b.p. Stationary Set, on receiver 20in. x 58in., £165.

**WILLIAM R. SELWOOD, LTD.,**  
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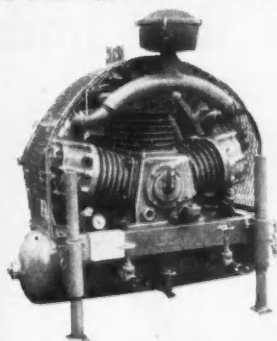
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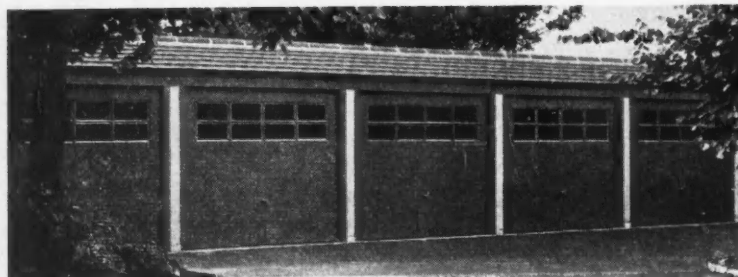
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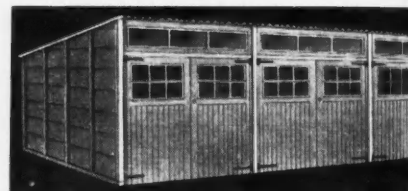
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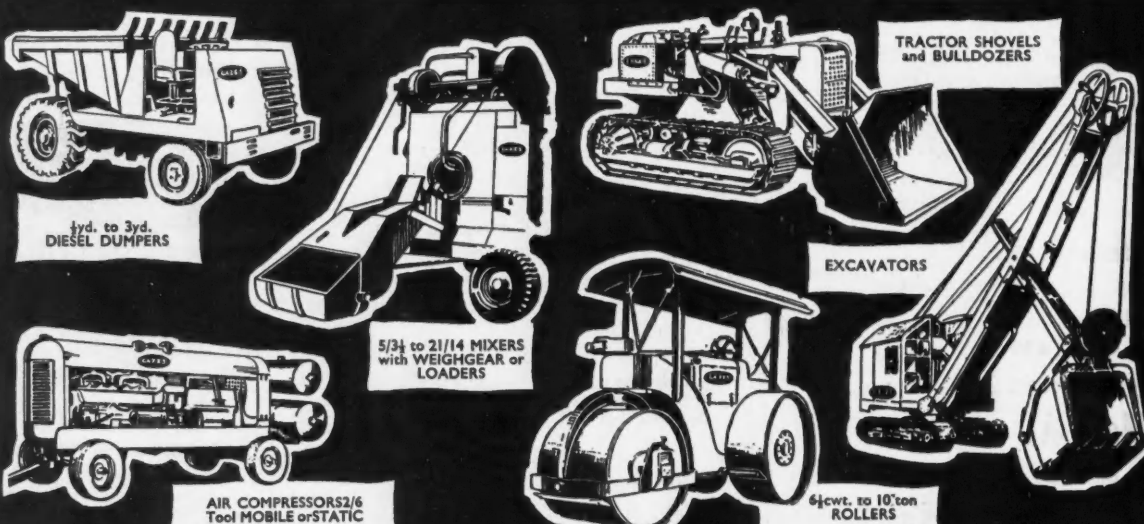
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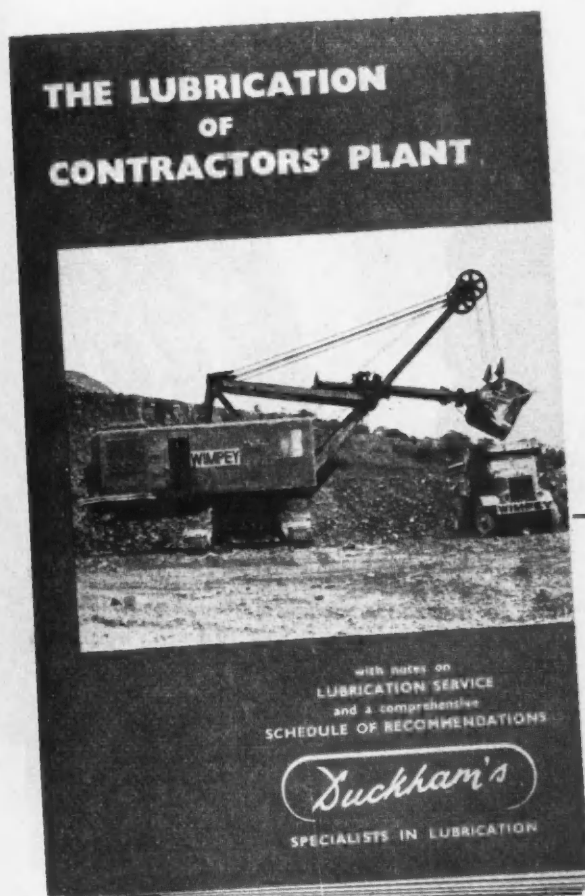
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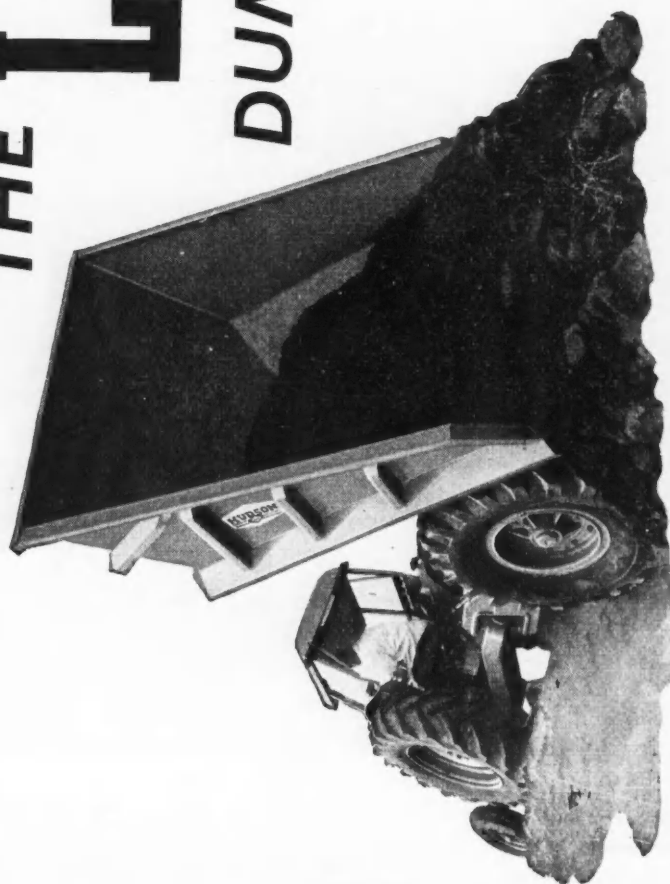
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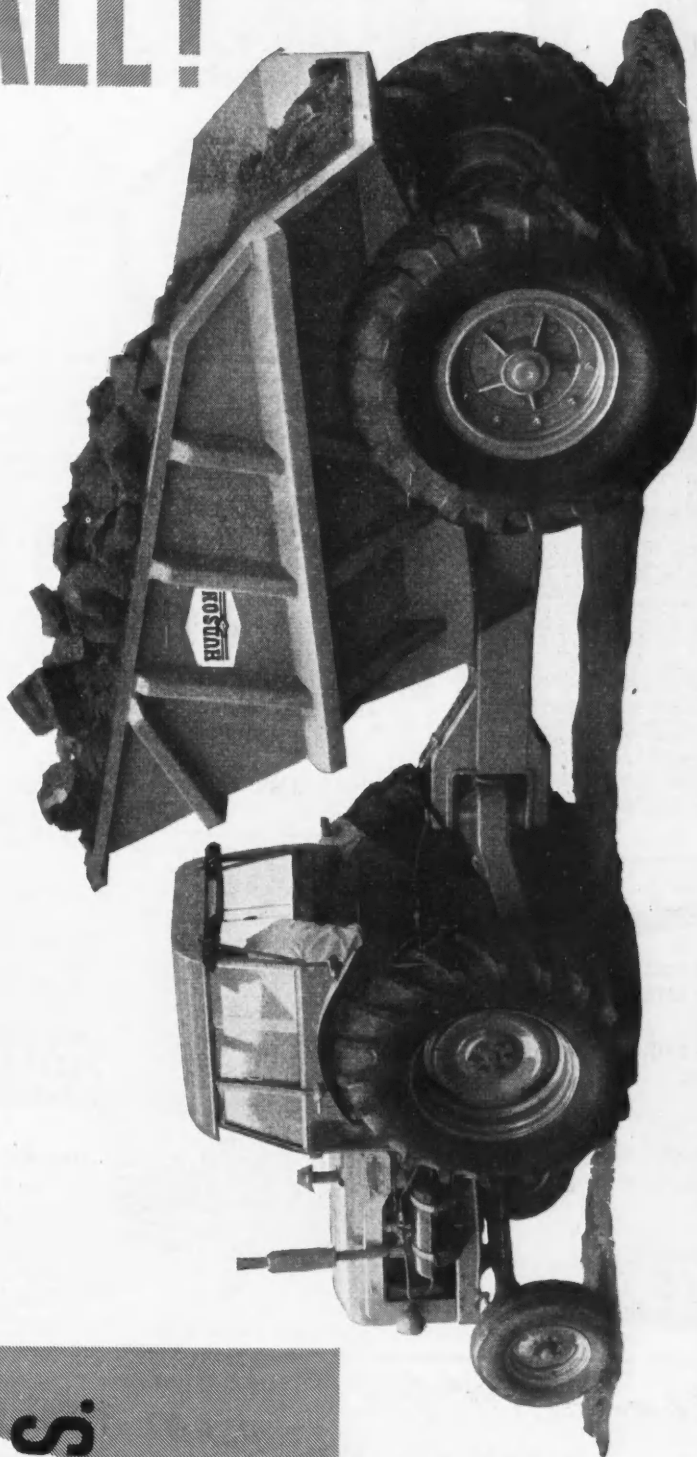
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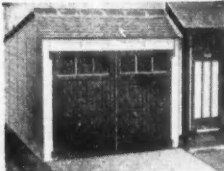
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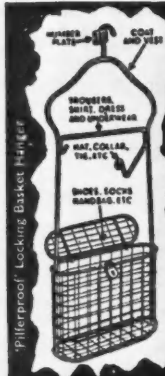
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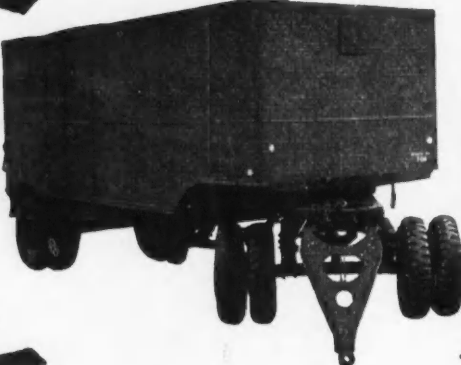
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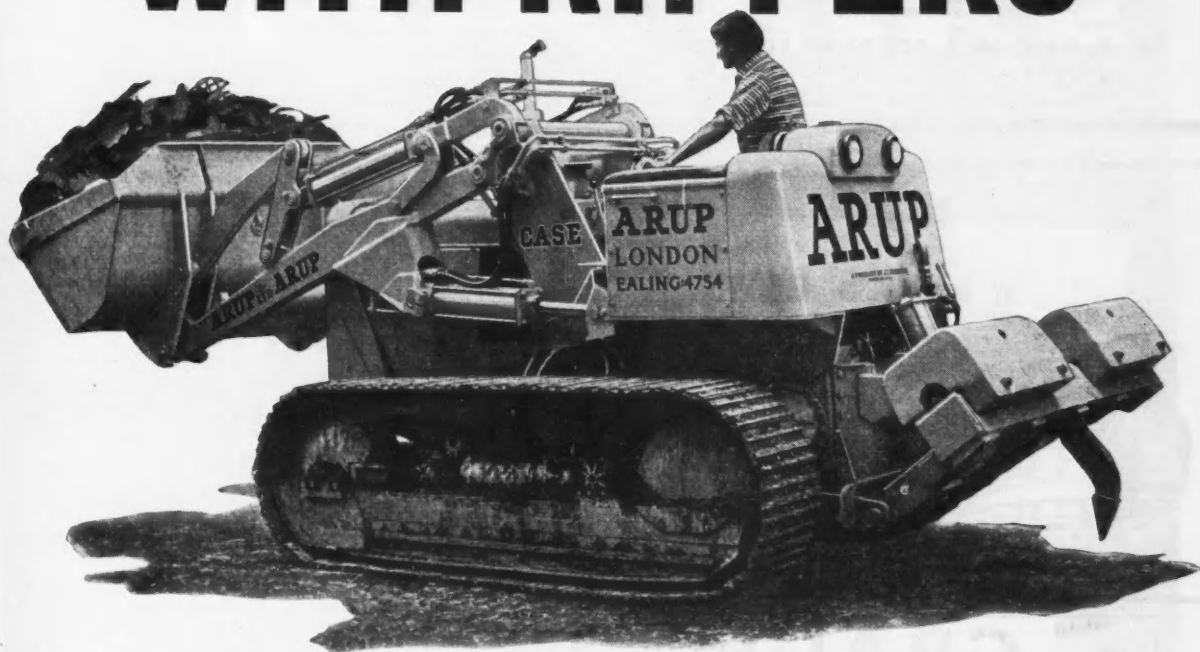
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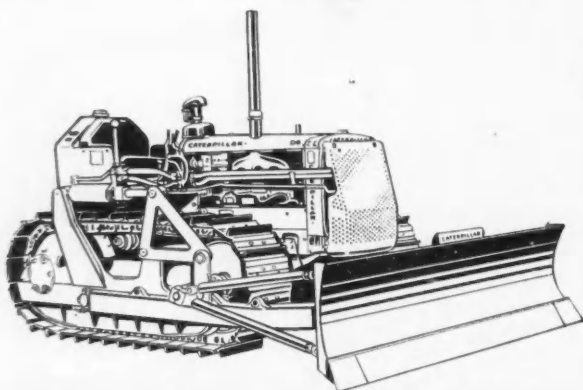
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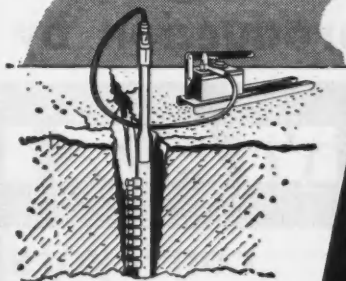
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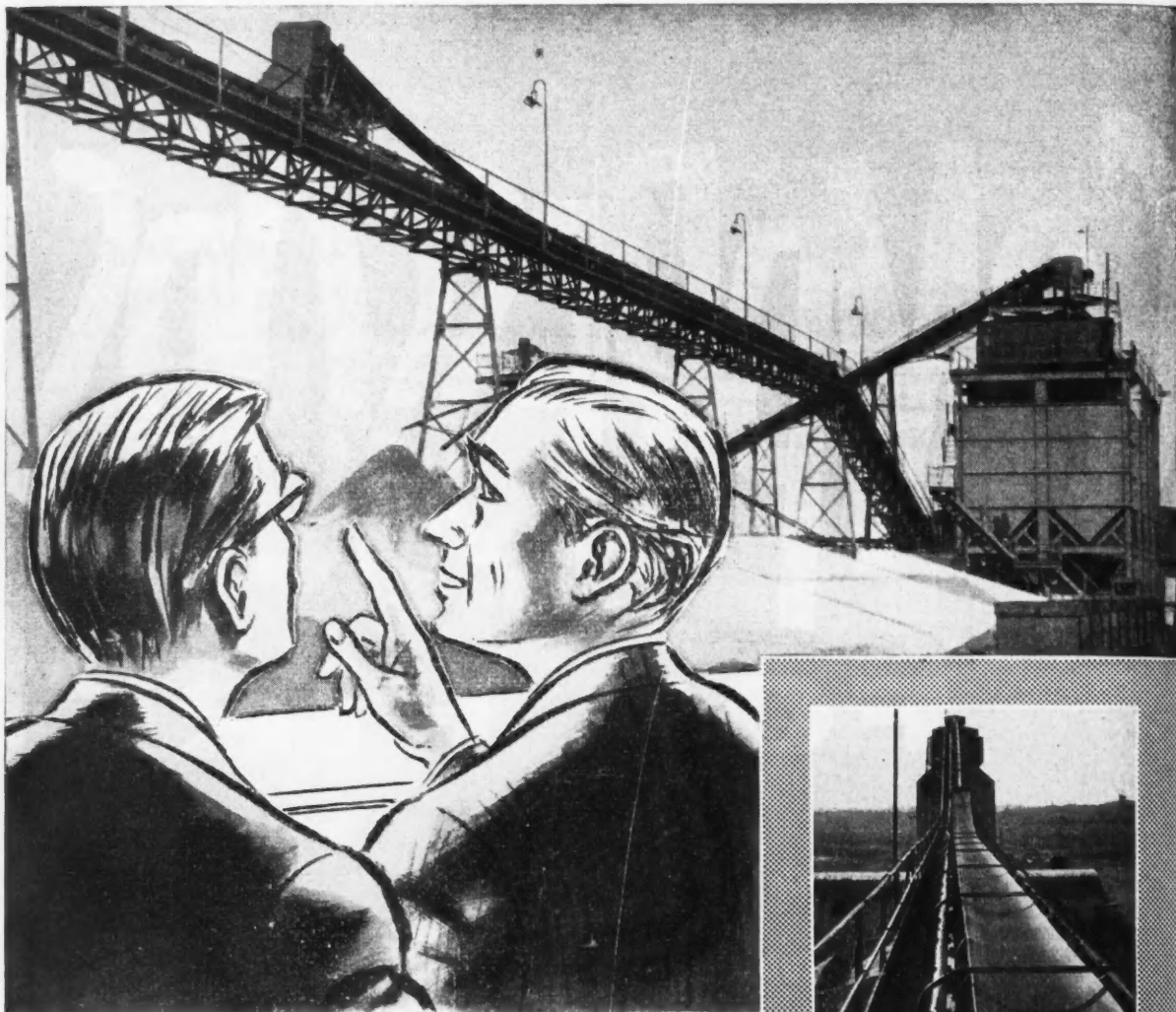


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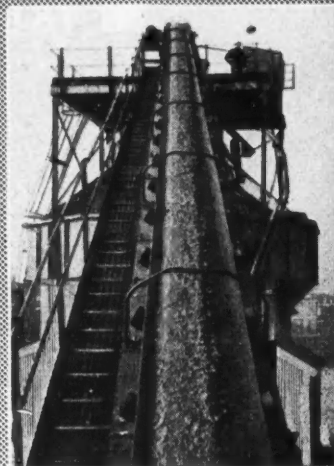
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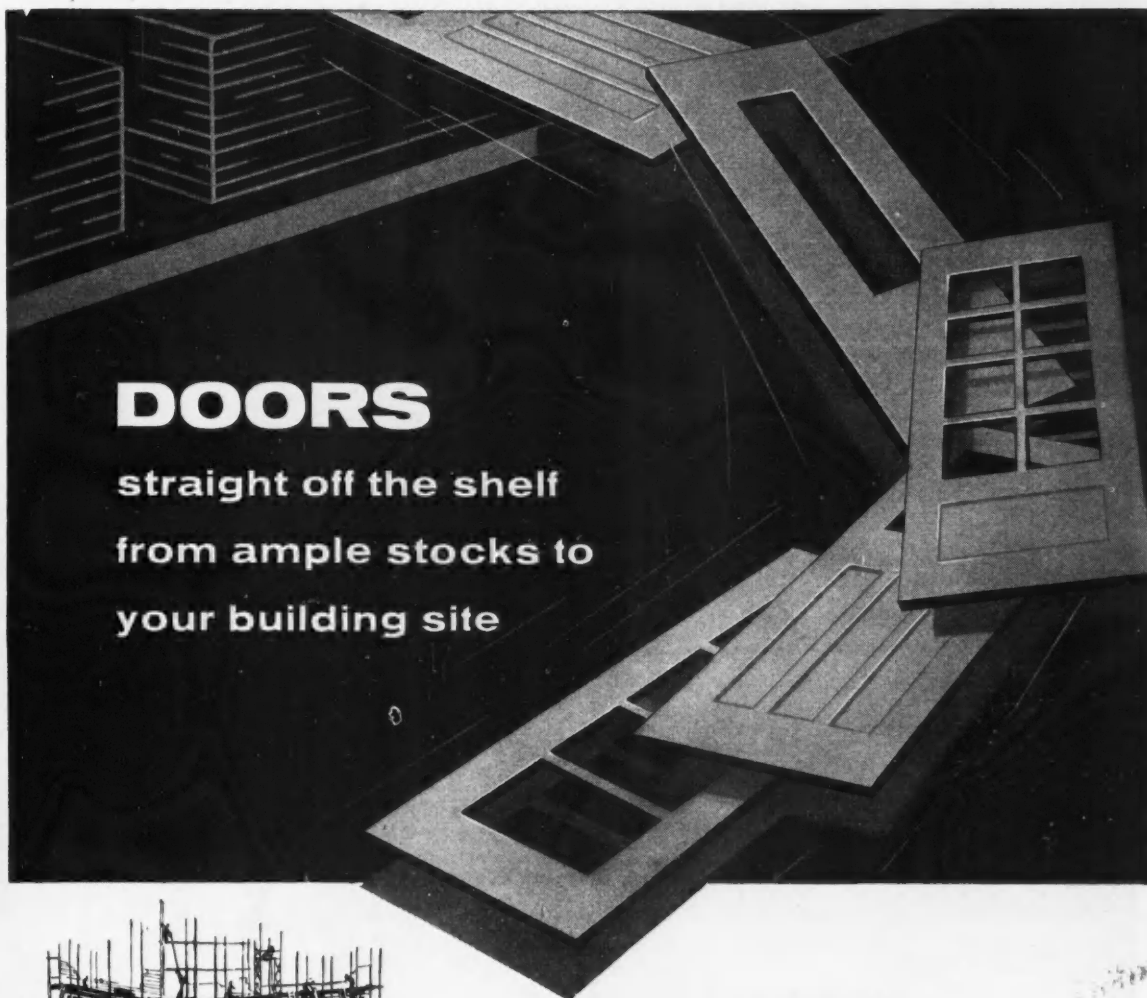
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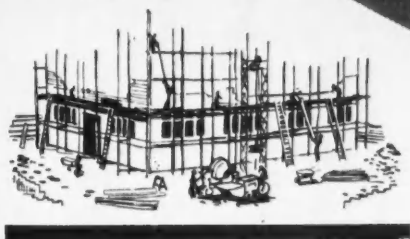
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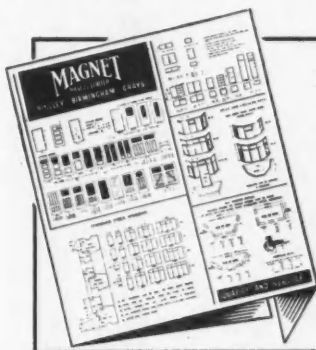
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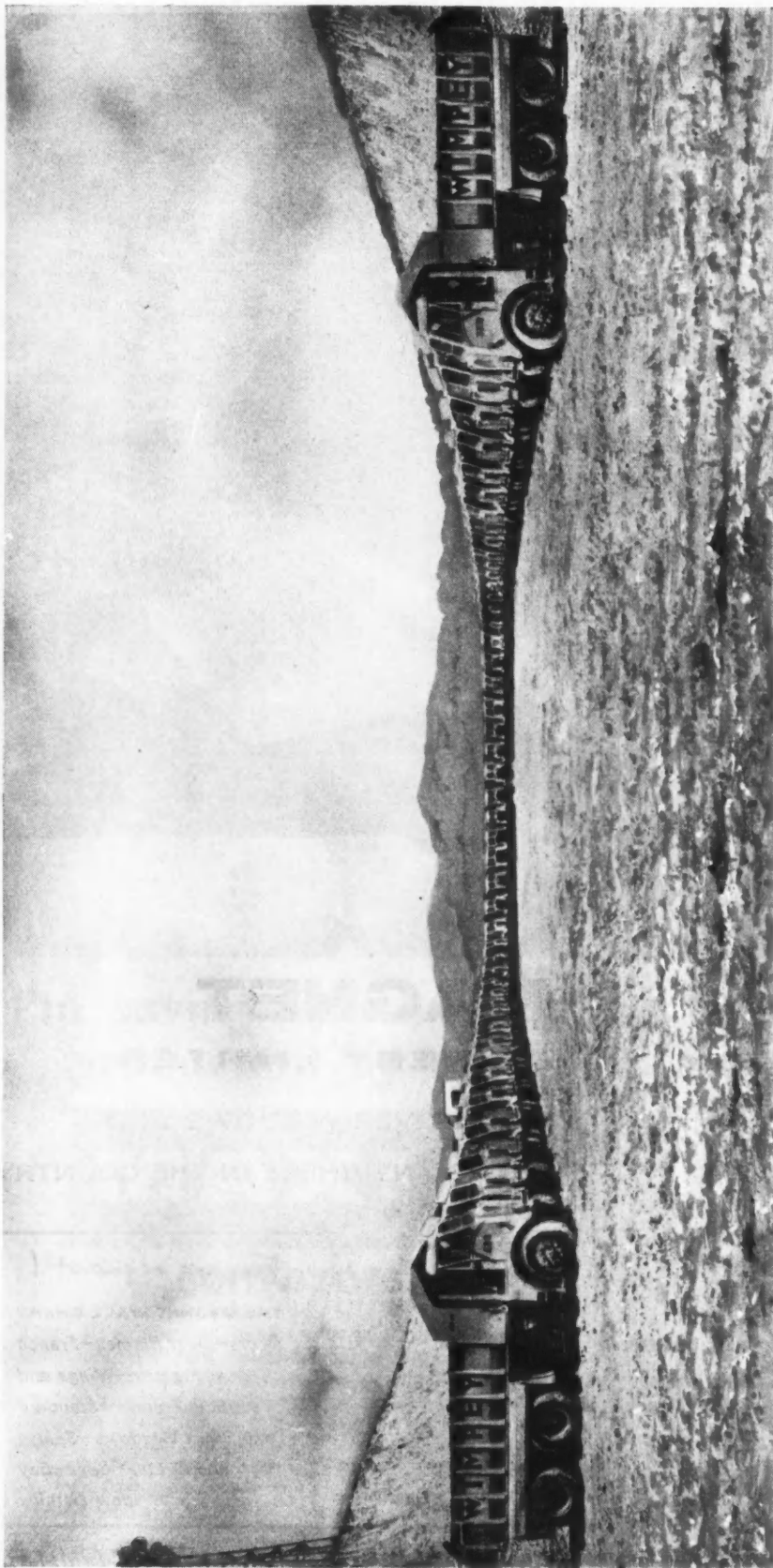


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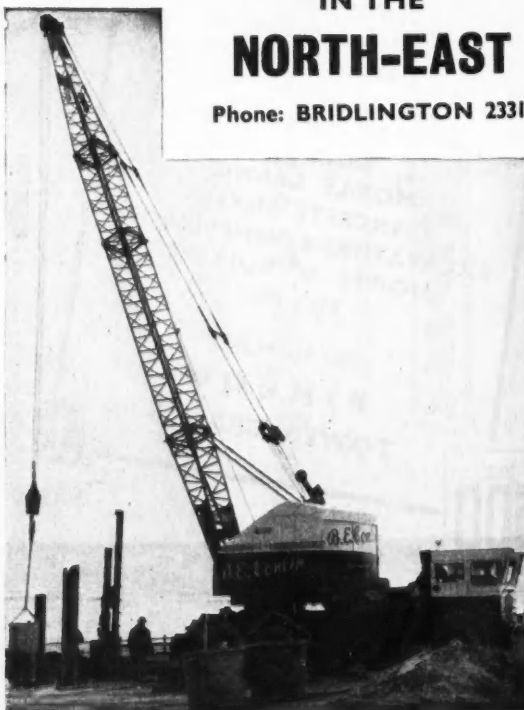
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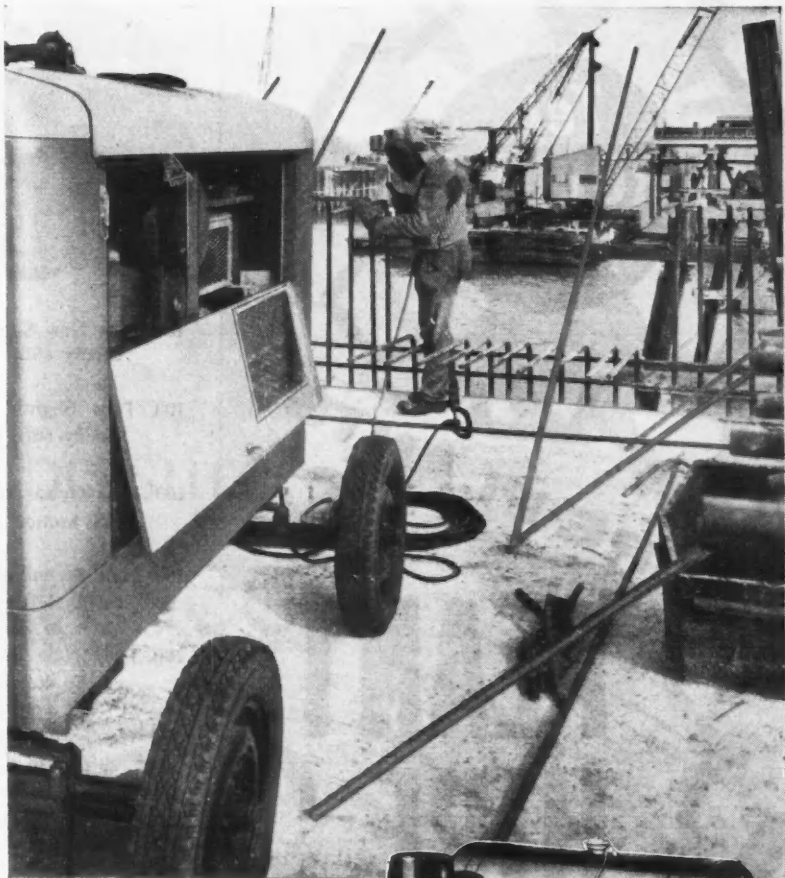
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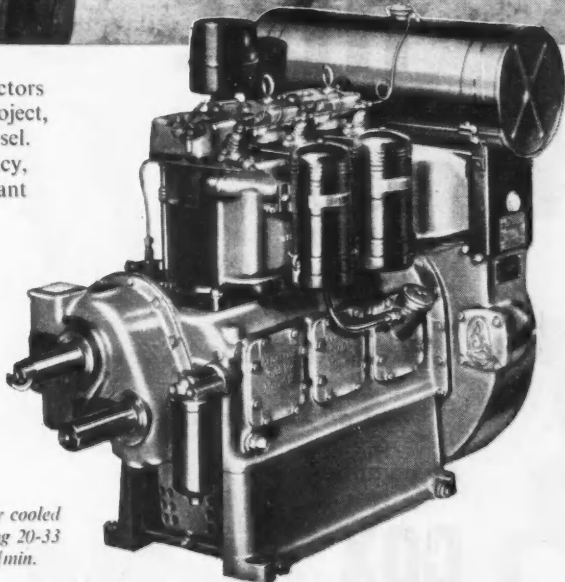


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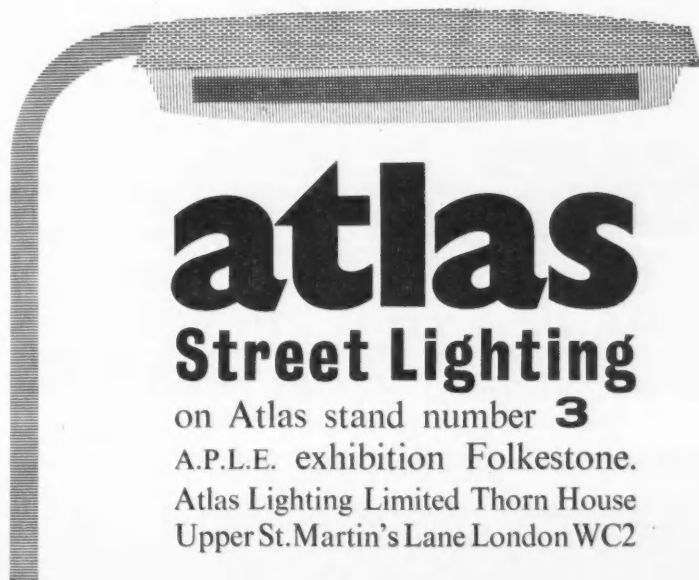
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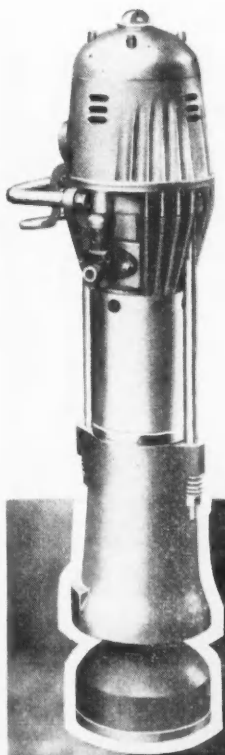
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Part Two in the story of a modern organisation geared to supply a vital and growing industry.

*By A Special Correspondent*

Wherever there are materials to be moved in bulk, Caterpillar-built machines are known and respected. The business of keeping these machines working at a high degree of efficiency has therefore become a very specialised one. Caterpillar Tractor Co. have accordingly built up a world-wide organisation through a series of Authorised Dealerships. These organisations, operating as independent companies, handle the responsibility of keeping Caterpillar-built machines on the job whenever they are wanted.

Not the least of the activities of these Dealers is the supply of replacement parts which may be required at any hour, as a result of normal wear and tear, or of breakdowns caused by the particularly arduous tasks which many of these machines constantly have to tackle. This Parts Supply aspect of the operation is one which involves careful thought in the utilisation of time, space and money by all the Caterpillar Dealers. Bowmaker (Plant) Limited who are the Authorised Dealer for the Midlands, Wales and South and West of England, have six Parts Stores strategically located in this area. One of these has recently been rebuilt at Clay Cross, Derbyshire, and three more completely new installations are under construction at Cannock, Cardiff and Exeter to replace existing premises and greatly improve the service.



*A corner of the Parts Store at the Willenhall Branch.*

**Vast Parts Stocks**

The value of parts stocks held in these four depots, together with those at the smaller branches at Chippenham and Salisbury is in excess of £1m., consisting of varying quantities covering more than 26,000 different items. These stocks are available not only to the Company's service workshops and mobile service fitters, but also to all Caterpillar users, at any hour of the day or night whenever a prime unit may be in need of attention.

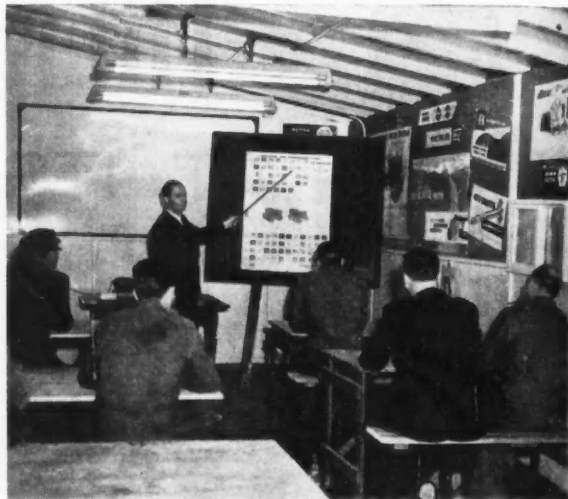
In all, over 60 people are engaged in the procurement and storing, allocation and despatch of these various parts, and they maintain an efficient service with overnight transport connections between branches, and also to Caterpillar's Leicester Plant.

**Training Programmes**

In the interests of even greater efficiency, training programmes are being carried out among these personnel with the backing and authority not only of their own management, but also of Caterpillar Tractor Co. in the U.S.A., and their subsidiary in the United Kingdom. Training is given in varying subjects covering commercial practices, methods of handling, inventory control and merchandising. Films and tape recordings are widely used in the training sessions to cover many subjects such as "Quality Control" and the "Economics of Storekeeping." Keen rivalry is shown by personnel in all branches to be the first to obtain the Training Certificate which is awarded each year by Caterpillar on completion of the specified programme.

**A Day at Willenhall**

Let us take a closer look into the activity of one of these Parts Departments. At Willenhall an average of 450 different items in varying quantities are dealt with each day. Enquiries are received by mail, telephone, telex and personal demand; in some cases directly from the customer, and in other cases through the intermediary of the firm's own service organisation. Of these demands, approximately 93 per cent. are served immediately from stock, and on routine procedures are despatched by the most expedient means on the day the order is received, usually within four hours.



*A typical training session, here at the Clay Cross Branch.*

The parts which are not immediately available at the time of demand are then dealt with by the emergency procurement section which is able to call on the assistance of Bowmaker (Plant) Limited's other branches, Caterpillar's emergency stocks in Leicester, and on the Continent at Brussels, and also on all Co-Dealer parts stores in the United Kingdom. Usually this results in the wanted items being received by the user in 24 hours. Where even this does not produce the requirement, then help is requested from other Caterpillar Dealers on the Continent, or demands are made on the Parent Company's many factories in the United States.

When this is necessary, urgently needed consignments can be obtained in as little as 48 hours, although on average, emergency air freight procurement involves waiting approximately 4/5 days. Even when the required parts are available in the United Kingdom, aircraft are frequently used to transport them between such points as Caterpillar's plant near Glasgow and the Bowmaker Branches.

**A Key Section**

The Parts Department is therefore playing a major role within the Dealer organisation and is no mere storeroom attached to the workshops. Thorough control of inventories by this Department is essential to ensure efficient operation of the whole Dealer organisation inasmuch as service cannot be given to any machinery unless the right spares are in the right place at the right time; neither can new machines or equipment be put to work with confidence unless the Parts Department has adequate stocks or spares available to ensure proper maintenance.



*Stock Control Records Department at the Willenhall Branch.*

Bowmaker (Plant) Limited are justifiably proud of the reputation their Parts Department has built up over the last 10 years and are confident that they offer to all Caterpillar users a service second to none.

Bowmaker (Plant) Limited, Authorised Caterpillar Dealer, operates from these five depots: Noose Lane, Willenhall, Staffs. (Tel. Willenhall 696); Colchester Avenue, Colchester Trading Estate, Cardiff (Tel. Cardiff 45661); Fenny Bridges, Honiton, Devon (Tel. Feniton 206); Hulse Road, Salisbury, Wilts. (Tel. Salisbury 4965); and Chesterfield Road, Clay Cross, Derbyshire (Tel. Clay Cross 2571).

Caterpillar and Cat are Registered Trademarks of Caterpillar Tractor Co.



## CONTRACTS

## OFFICE OF PUBLIC WORKS.

## ELECTRIC CRANES.

Sealed TENDERS, addressed to the SECRETARY, Office of Public Works, 51 St. Stephen's Green, Dublin, and receivable up to Noon on 7th OCTOBER, 1960, are invited for the SUPPLY and ERECTION of TWO 3½-TON ELECTRIC CRANES at DUN LAOGHAIRE HARBOUR, in accordance with Plans, Specification and Conditions of Contract exhibited at this Office, where Tender Form and copies of the Plans and Specifications may be obtained.

## Borough of Middleton.

## WOODHILL REDEVELOPMENT AREA.

## ROADWORKS.

TENDERS are invited for the CONSTRUCTION of the ROADS, including Drainage, Footpath Access, and Decorative Paving Works, within the above-mentioned Redevelopment Area, in Two Phases. The work involves 1,300 sq. yd. of Carriageway, 1,400 sq. yd. of Footways and 1,000 sq. yd. of Decorative Paving and Greening.

Plans may be inspected during normal office hours and copies of the Conditions of Contract, Specification, Bills of Quantities and Form of Tender may be obtained from the Borough Engineer and Surveyor, Town Hall, Middleton, near Manchester, upon deposit of £2 2s., which will be refunded on receipt of a bona-fide Tender.

Tenders, in plain sealed envelopes endorsed "Tender—Roadworks, Woodhill," must be delivered to the undersigned not later than Noon on THURSDAY, 15th September, 1960.

The Council does not bind itself to accept the lowest or any Tender.

F. JOHNSTON,

Town Clerk.

Town Hall,

Middleton,

Near Manchester.

17th August, 1960.

## Borough of Maidenhead.

## A.308—SIX CROSS-ROADS IMPROVEMENT.

The COUNCIL invites TENDERS for the CONSTRUCTION of approx. 3,000 sq. yd. of DRY LEAN CONCRETE CARRIAGEWAY FOUNDATION; 3,900 sq. yd. of ROLLED ASPHALT and 4,200 sq. yd. of COATED MACADAM BASE and WEARING COURSES on New and Existing Foundations; the PROVISION and LAYING of 1,100 lin. yd. of PRECAST CONCRETE KERB and SCORIAE BLOCK CHANNEL; the CONSTRUCTION of FOOTWAYS and GRASS AREAS; the PROVISION and LAYING of approx. 1,000 lin. yd. of 15in., 12in., 9in. and 6in. dia. SURFACE WATER SEWERS; Manholes, Gullies, Fencing, etc., together with all incidental works.

Drawings may be seen at the Office of the Borough Engineer and Surveyor, 14 Craufurd Rise, Maidenhead, on payment of a deposit of Two Pounds, which will be refunded upon receipt of a bona-fide Tender and the return of all documents.

Tenders, in plain sealed envelopes endorsed "Six Cross-roads Improvement," and bearing no mark or indication of the sender, must be delivered to me not later than THURSDAY, 22nd September, 1960.

The Council does not bind itself to accept the lowest or any Tender.

STANLEY PLATT,

Town Clerk.

Guildhall,

Maidenhead, Berks.

August, 1960.

## Borough of Wallsend.

## COAST ROAD SEWER.

The COUNCIL invite TENDERS for the CONSTRUCTION of approx. 2,350 lin. yd. of 15in., 18in., 27in. and 30in. dia. CAST-IRON and CONCRETE PIPE SEWERS, together with the necessary Manholes, etc., and all appurtenant works.

Forms of Tender, Specification and Bills of Quantities may be obtained from the Council's Consulting Engineer, MESSRS. WATERHOUSE AND ROUNTHWAITE, MM.Inst.C.E., 165 Westmorland Road, Newcastle upon Tyne, 4, upon payment of a deposit of Five Guineas, which will be returned on receipt of a bona-fide Tender.

Drawings illustrating the works to be carried out may be inspected at the Offices of the Borough Surveyor, or at those of the Consulting Engineer.

Tenders should be delivered to me, the undersigned, in a plain sealed envelope endorsed "Coast Road Sewer," not later than 12 Noon on TUESDAY, 11th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

JOHN STOKER,

Town Clerk.

Town Hall,

Wallsend.

## City of Manchester.

## DAYVHULME SEWAGE WORKS EXTENSIONS—STAGE 1B.

TENDERS invited for CONSTRUCTION OF PRE-ERATION and PRIMARY SEDIMENTATION PLANT, comprising Eight Sedimentation Tanks each 146ft. dia., and appurtenant works.

Documents, returnable by 31st OCTOBER, 1960, from CITY SURVEYOR, Town Hall, Manchester, 2.

## Barnet Urban District Council.

## TURFING AND SEEDING TO THE AREAS AROUND THE FLATS ON THE WHITINGS HILL HOUSING ESTATE.

The Council invites TENDERS for the TURFING and SEEDING OF THE AREAS AROUND THE FLATS on the Whittings Hill Housing Estate, the total area being approx. 6,800 square yd., and other incidental works.

Conditions of Contract may be inspected, and Specification of Works, Bill of Quantities and Form of Tender obtained, on application to the Engineer and Surveyor of the Council, Ravenscroft House, Wood Street, Barnet, on any day (Saturdays excepted) between the hours of 9 a.m. and 5 p.m.

Sealed Tenders must be delivered to the undersigned not later than 12 Noon on SATURDAY, the 17th September, 1960, and marked in the top left-hand corner "Whittings Hill Housing Estate Flats."

The Council do not bind itself to accept the lowest or any Tender.

ALFRED S. MAYES,

Clerk of the Council.

Municipal Offices,

Wood Street,

Barnet, Herts.

19th August, 1960.

## CONTRACTS

## ROYAL COUNTY OF BERKSHIRE.

## RECONSTRUCTION OF BAY ROAD, BRACKNELL.

TENDERS are invited for the RECONSTRUCTION of BAY ROAD, BRACKNELL, a length of 820 lin. yd. The scheme provides for approx. 1,800 cu. yd. of Excavation, Concrete Foundations, Gravel Asphalt Surfacing, Kerbing, Footways, Drainage and incidental works.

Drawings may be inspected at, and Conditions of Contract, Specification, Bills of Quantities and Form of Tender obtained from, the Office of the COUNTY SURVEYOR, Shire Hall, Reading, on payment of a deposit of £2 2s., returnable upon receipt of a bona-fide Tender, not subsequently withdrawn.

Tenders should be returned, in the envelope provided, not later than Noon on WEDNESDAY, 21st September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

## ROYAL COUNTY OF BERKSHIRE.

## HIGHWAYS ACT, 1959 (PART 9)—CODE OF 1932.

TENDERS are invited for MAKING-UP ROCHDALE ROAD (Part), BRACKNELL. The works involved in this contract are as follows:—

790 sq. yd. of Hardcore.  
260 lin. yd. of Bitumen Macadam.  
480 sq. yd. of Bitumen Macadam and Cold Asphalt Footways.

90 lin. yd. of Highway Drain and incidental works.

Drawings may be inspected at, and Specification, Bill of Quantities and Form of Tender obtained from, the Office of the COUNTY SURVEYOR, Shire Hall, Reading, on payment of a deposit of £2 (Two Pounds), which will be refunded on receipt of a bona-fide Tender.

Tenders, in envelope provided, must be returned not later than 12 Noon on FRIDAY, 16th September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

## Borough of Lympington.

## PRIVATE STREET WORKS ACT, 1892.

## SEACROFT AVENUE GROUP.

TENDERS are invited for MAKING-UP SEACROFT AVENUE, PINE CLOSE and SEAFIELD CLOSE, within the Borough of Lympington.

Plans and Conditions of Contract may be inspected at the Office of the Borough Engineer, Town Hall, Lympington, from whom copies of the Specification, Bills of Quantities and Form of Tender may be obtained, on payment of a sum of £2 2s., which is returnable on receipt of a bona-fide Tender not subsequently withdrawn.

Tenders, accompanied by priced Bills of Quantities, in plain sealed envelopes endorsed "P.S.W.—Seacroft Avenue Group," must be delivered to the undersigned not later than First Post on MONDAY, 3rd October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

A. L. SLATER,

Town Clerk.

Town Hall,

Lympington.

## Mexborough Urban District Council.

## WATH ROAD SPORTS AND PLAYING GROUND SCHEME, MEXBOROUGH.

FIXED-PRICE TENDERS are invited for the CONSTRUCTION OF THE ABOVE GROUNDS, including Gravel, Soling and Seeding approx. 5 acres, and the Erection of Brick-built Pavilion, Shelter and Toilet Blocks; the Fixing of Playing Equipment, Fencing, etc.; and all ancillary works.

Plans and Articles of Agreement can be inspected, and General Conditions, Specifications, Bill of Quantities and Form of Tender obtained, at the Office of the Architect and Surveyor, Council Offices, Adwick Road, Mexborough, on payment of a deposit of Three Guineas, which will be refunded on receipt of a bona-fide Tender not subsequently withdrawn, and on the return of all documents issued to the contractor. Priced Bills of Quantities must be returned at the same time as the Tender, in the special envelope provided.

Tenders, endorsed "Wath Road Scheme," to be delivered in a plain sealed envelope to the undersigned not later than Noon on the 1st OCTOBER, 1960.

Tenders will only be considered from firms having had similar experience and who have adequate special plant and skilled staff.

The lowest or any Tender will not necessarily be accepted.

S. H. E. CRANE,

Clerk of the Council.

Council Offices,

Adwick Road,

Mexborough.

24th August, 1960.

## Bridge-Blean Rural District Council.

## ERECTION OF 30 DWELLINGS AT CHARTHAM.

TENDERS are invited for the ERECTION and COMPLETION OF 30 DWELLINGS at Chartam, comprising Five Pairs of Two-bedroom Houses, One Pair of Three-bedroom Houses, One Block of Four Two-bedroom Bungalows, Two Blocks of Four Houses each containing Three Two-bedroom and One Three-bedroom Houses, One Block of Six Flats containing One One-bedroom and Five Two-bedroom Flats, together with the Provision of External Services within and without the Curtilage of the Dwellings. Copies of the Bills of Quantities and Form of Tender may be obtained from the Council Offices, 41 Old Dover Road, Canterbury, on deposit of a fee of Two Guineas (which may be returned to be made payable to the Bridge-Blean Rural District Council). The deposit will be refunded only upon receipt of a bona-fide Tender not subsequently withdrawn, and the documents (Bills of Quantities) lent for the purpose of tendering.

Prints of the Drawings may be inspected either at the Office of the Architect, H. V. GODFREY, A.R.B.A., 63 Oxford Street, Whitstable, or at the Council Offices during normal office hours.

Tenders, in sealed envelopes endorsed "Houses—Chartam," accompanied by Bills of Quantities and the General Summary, must reach the undersigned not later than 12 Noon on WEDNESDAY, the 28th September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

I. F. SOILLEUX,

Clerk of the Council.

Council Offices,

41 Old Dover Road,

Canterbury.

2nd September, 1960.

## CONTRACTS

## BUCKS. COUNTY COUNCIL.

## AMERSHAM-CHESHAM ROAD, A.416.

## ROADWORKS—STATION ROAD, AMERSHAM.

TENDERS are invited for ROADWORKS (approx. 150 yd.), comprising Lowering, Widening, Strengthening, and Minor Realignment with Lean Rolled Concrete, Tarmacadam, Shaping, Kerbing, Channelling, Drainage, Footpath, and ancillary works.

Drawings may be seen at the Offices of the County Surveyor, County Offices, Aylesbury, or at the Offices of the Divisional Surveyor, Bishops House, Reynolds Road, Beaconsfield.

Contract documents may be obtained from the County Surveyor on payment of a deposit of £2, returnable on receipt of a bona-fide Tender.

Tenders must be received by me by 10 a.m. MONDAY, 26th September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

R. E. MILLARD,

Clerk of the County Council.

County Hall,

Aylesbury.

August, 1960.

## BUCKS. COUNTY COUNCIL.

## LONDON-BIRMINGHAM TRUNK ROAD, A.41.

## IMPROVEMENT AT NORMILL TERRACE.

TENDERS are invited for ROADWORKS (approx. 1,000 yd.), comprising Widening, Haunching and Channelling in Concrete, Kerbing, Tarmacadam Shaping, Drainage, the Extension of a Culvert, and ancillary works.

Drawings may be seen at the Offices of the County Surveyor's Department, Park Street, Aylesbury, and Contract documents may be obtained from the County Surveyor, County Offices, Aylesbury, on deposit of £2, returnable on receipt of a bona-fide Tender.

Tenders must reach the undersigned by 10 a.m. on MONDAY, 3rd October, 1960.

R. E. MILLARD,

Clerk of the Council.

County Hall,

Aylesbury.

September, 1960.

## BUCKS. COUNTY COUNCIL.

## LONDON-FISHGUARD TRUNK ROAD, A.40.

## IMPROVEMENT AT RADNAGE TURN.

TENDERS are invited for ROADWORKS (total length approx. 800 yd.), comprising the Construction of 500 yd. of New 24ft. Carriageway, and the Widening, Haunching and Channelling in Concrete and Rolled Concrete of the remaining length, together with Kerbing, Drainage, Grading with Tarmacadam, and other ancillary works.

Drawings may be seen at the Offices of the County Surveyor's Department, Park Street, Aylesbury, and Contract documents may be obtained from the County Surveyor, County Offices, Aylesbury, on deposit of £2, returnable on receipt of a bona-fide Tender.

Tenders must reach the undersigned by 10 a.m. on MONDAY, 3rd October, 1960.

R. E. MILLARD,

Clerk of the Council.

County Hall,

Aylesbury.

August, 1960.

## Borough of Reigate.

## TWO BLOCKS OF 12 MAISONNETTES WITH 36 STORES UNDER AND FOUR GARAGES—CROMWELL ROAD ESTATE, REDHILL.

FIXED-PRICE TENDERS invited, based upon Bills of Quantities for Substructure and Site Works, and Lump Sum for Superstructure.

Form of Tender, Specification, Bills of Quantities and Plans obtainable from Borough Surveyor, Town Hall, Reigate, on payment of deposit of £2 2s. Closing date for receipt of Tenders: Noon, 27th SEPTEMBER, 1960.

HEBER DAVIES,

Town Clerk.

Town Hall,

Reigate.

## City of Birmingham.

## TO PUBLIC WORKS CONTRACTORS.

The HOUSEBUILDING COMMITTEE invite TENDERS on a Fixed-price Basis for the CONSTRUCTION OF ROADWAYS and FOUT, and SURFACE WATER SEWERS, together with incidental works, on the WYRLEY BIRCH HOUSING ESTATE (PART 3), WITTON.

Copies of the Specifications, Bills of Quantities and Forms of Tender may be obtained on payment of £2 2s. at the Office of SIR HERBERT J. MANZONI, City Engineer and Surveyor, Civic Centre, Birmingham, 1, to whom all cheques should be made payable. The deposit will be returned on receipt of a bona-fide Tender.

Plans for the road and sewerage works can be seen at Rooms 339 and 39, respectively, Civic Centre, Birmingham, 1.

Tenders, enclosed in the envelopes provided for the purpose, must be sealed and delivered to the Town Clerk's Office (Room No. B.31), Council House, Birmingham, 1, not later than 12 Noon on WEDNESDAY, 21st September, 1960, when they will be opened. Tenders received after that time will be rejected.

The Committee do not bind themselves to accept the lowest or any Tender.

T. H. PARKINSON,

Town Clerk.

Council House,

Birmingham, 1.

## LITTLEPORT PARISH COUNCIL.

## PROPOSED SWIMMING POOL—PARSON'S LANE, LITTLEPORT, CAMBS.

TENDERS are invited for the CONSTRUCTION of a SWIMMING POOL, including Filtration and Chlorination Plant, Cubicles, Conveniences, etc.

Plans can be inspected, and Bills of Quantities, Specifications and Tender Forms can be obtained from the Architect, MR. A. E. KING, M.Inst.R.A., 1a Lynn Road, Ely, Cambs.

Tenders, on the prescribed Tender Form, endorsed "Tender for Swimming Pool," to be received by the undersigned on or before 8th OCTOBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

J. SPARROW,

Clerk to the Council.

Town Hall,

Littleport,

Ely, Cambs.

## CONTRACTS

## ANGUS COUNTY COUNCIL.

LUNDIE/AUCHTERHOUSE/TEALING  
WATER SUPPLY.

## CONTRACT NO. 4.

TENDERS are invited for SUPPLYING and LAYING approx. 2,000 yd. of 3in. and 2in. dia. ASBESTOS-CEMENT PIPES, and BUILDING a SMALL PUMPHOUSE at AUCHTERHOUSE.

Contractors wishing Contract documents should apply immediately to the County Engineer, County Buildings, Forfar.

IAN A. MACKNIGHT,  
County Clerk.

County Buildings,  
Forfar.

## ANGUS COUNTY COUNCIL.

LUNDIE/AUCHTERHOUSE/TEALING  
WATER SUPPLY.

## CONTRACT NO. 4A—PUMPING EQUIPMENT.

TENDERS are invited for SUPPLYING and INSTALLING TWO ELECTRICALLY DRIVEN CENTRIFUGAL PUMPS each capable of boosting 20 g.p.m. of water through 175ft. total head.

Complete Specification may be had from the County Engineer, County Buildings, Forfar.

IAN A. MACKNIGHT,  
County Clerk.

County Buildings,  
Forfar.

## GLOUCESTERSHIRE COUNTY COUNCIL.

## MORTON-OLDBURY NAITE ROAD.

TENDERS are invited for WORKS on the ABOVE-NAMED ROAD, and which consist of the Widening and Reconstruction of 2½ miles of Existing Road and the Construction of 1¼ miles of New Road, including Drainage, Earthworks, Fencing, Footpaths, 18/22ft. wide Carriageway, Two Reinforced Concrete Culverts on Piled Foundations, and ancillary works.

The completion date is 1st September, 1961.

The works are situated between Morton and Oldbury Naite, and are approx. one mile north of Thornbury, near Bristol.

Tender documents can be obtained from the County Surveyor, Quay Street, Gloucester, on payment of a deposit of £10, made payable to the Gloucestershire County Council, which will be refunded on receipt of a bona-fide Tender not subsequently withdrawn.

Tenders, in plain sealed envelopes endorsed "Morton-Oldbury Naite Road," must be received by the County Surveyor, Quay Street, Gloucester, not later than 10 a.m. on WEDNESDAY, 5th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

GUY H. DAVIS,  
Clerk of the County Council.

Shire Hall,  
Gloucester,  
August, 1960.

## COUNTY BOROUGH OF BURY.

TENDERS invited for the COMPLETION of CHANNELLING, KERBING, FLAGGING and SURFACING of CARRIAGEWAY in LEAMINGTON AVENUE, BROOKFIELD ROAD and STRATFORD AVENUE.

Tender documents obtainable from Borough Engineer's Office, Town Hall, Bury, where Drawings may be inspected.

Tenders, in official envelope provided, must reach me by 24th SEPTEMBER, 1960.

EDWARD S. SMITH,  
Town Clerk.

Town Hall,  
Bury,  
23rd August, 1960.

## BOROUGH OF MAIDSTONE.

EXTENSIONS TO AYLESFORD SEWAGE DISPOSAL  
WORKS SLUDGE PUMPING STATION.

## WM18 CONTRACT M12.

FIRM-PRICE TENDERS are invited for the SUPPLY and ERECTION at Aylesford Sewage Works of TWO CENTRIFUGAL SLUDGE PUMPS, each rated at 125 g.p.m., and TWO DITTO, each rated at 200 g.p.m., together with Motor and Control Gear, Station Pipework, Valves, etc.

Particulars and Specifications obtainable from, and Plans inspected at, the Offices of the Consulting Engineers, MESSRS. HOWARD HUMPHREYS and SONS, Victoria Station House, Victoria Street, London, S.W.1, on and from Wednesday, 14th September, 1960, until Friday, 23rd September, 1960, upon payment of a deposit of Five Guineas made payable to the Corporation, refundable for bona-fide Tender not subsequently withdrawn.

No Tender considered unless on the official form and delivered to the undersigned, in plain envelope endorsed as stated in the documents, but bearing no indication of the sender, not later than MONDAY, 24th October, 1960.

The Council do not bind themselves to accept any Tender.

T. SCHOLES,  
Town Clerk.

Town Clerk's Office,  
13 Tonbridge Road,  
Maidstone, Kent,  
September, 1960.

## BOROUGH OF CHELMSFORD.

## MEADGATE ESTATE—PHASE III.

## CONSTRUCTION OF ROADS AND SEWERS.

FIXED-PRICE TENDERS are invited from experienced contractors for the CONSTRUCTION OF ROAD, SEWER and ancillary works in connection with the ABOVE DEVELOPMENT SCHEME. The works involve the construction of approx. 7,600 sq. yd. of Reinforced Concrete Carriageway, 2,500 lin. yd. of Foul and Surface Water Sewers 15in.-6in. dia., Manholes, Car Parks, and other incidental works.

The Specification, Bills of Quantities and Form of Tender may be obtained from, and the Plans inspected at, the Office of the Borough Engineer and Surveyor, Municipal Offices, Chelmsford, upon payment of Two Guineas, which will be returned upon receipt of a bona-fide Tender which is not subsequently withdrawn.

Tenders, in plain sealed envelopes endorsed "Meadgate—Roads and Sewers," must be delivered to the undersigned not later than 12 Noon on MONDAY, 3rd October, 1960.

The Council do not bind itself to accept the lowest or any Tender.

B. A. FRANCIS,  
Town Clerk.

Municipal Offices,  
Chelmsford.

## CONTRACTS

## GLOUCESTERSHIRE COUNTY COUNCIL.

## BIBSTONE DIVERSION—CROMHALL.

TENDERS are invited for WORKS on the ABOVE-MENTIONED SCHEME, which consists of the Construction of a 330 lin. yd. Diversion to the Existing Road, including Earthworks, Drainage, Fencing, 24ft. wide Carriageway, and ancillary works.

Completion date is 31st January, 1961.

The works are situated at Cromhall, four miles south-west of Wotton-under-Edge, on B.4058 Bristol-Nailsworth Road.

Tender documents can be obtained from the County Surveyor, Quay Street, Gloucester, on payment of a deposit of £5 made payable to the Gloucestershire County Council, which will be refunded on receipt of a bona-fide Tender not subsequently withdrawn.

Tenders, in plain sealed envelopes endorsed "Bibstone Diversion," must be received by the County Surveyor, Quay Street, Gloucester, not later than 10 a.m. on WEDNESDAY, 5th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

GUY H. DAVIS,  
Clerk of the County Council.

Shire Hall,  
Gloucester,  
September, 1960.

## BOROUGH OF SURBITON.

## HOOK ROAD—SURFACE WATER SEWER.

## CONTRACT NO. 3.

TENDERS are invited for the CONSTRUCTION of approx. 325 yd. of 12in. and 15in. dia. CONCRETE PIPE SEWER, together with Manholes and other appurtenant works, all in accordance with the Drawings and Specification prepared by the Engineers, MESSRS. JOHN TAYLOR and SONS, Artillery House, Artillery Row, Victoria Street, Westminster, S.W.1.

Copies of the Specification, Bill of Quantities and Form of Tender may be obtained from the Offices of the Engineers upon payment of £5 (cheque only, made payable to the Council), which will be returned upon receipt of a bona-fide Tender.

The Drawings may be seen at the Offices of the Engineers or at the Office of the Borough Engineer of Surbiton.

Tenders, in plain sealed envelopes endorsed "Tender—Hook Road, Surface Water Sewer—Contract No. 3," addressed to the undersigned, must be received on or before Noon on FRIDAY, the 7th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

(Signed) H. A. CRUNDELL,  
Town Clerk.

Council Offices,  
Surbiton, Surrey.

## BOROUGH OF DROITWICH.

## STREET LIGHTING—TOWN CENTRE.

TENDERS are invited from experienced contractors for the SUPPLY, DELIVERY and ERECTION of 24 PLAIN STEEL LIGHTING COLUMNS 25ft. mounting height, and FIVE TUBULAR STEEL BRACKETS, all with 250-W. Colour corrected Mercury Discharge Lamps, together with Wiring, Lanterns, and auxiliary gear, and the DISMANTLING of 29 EXISTING LIGHTING POINTS.

Conditions of Contract and Plan may be inspected at, and Specification, Bills of Quantities and Form of Tender obtained from the Borough Engineer and Surveyor, Town Hall, Droitwich, during normal office hours upon payment of a deposit of £2 2s., which sum will be returned on receipt of a bona-fide Tender and the return of all documents.

Tenders, in plain sealed envelopes endorsed "Street Lighting—Town Centre," to be delivered to the undersigned not later than 10 a.m. on MONDAY, 3rd October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

S. G. FOSTER,  
Town Clerk.

Town Hall,  
Droitwich, Worcs.,  
31st August, 1960.

CROOK AND WILLINGTON URBAN  
DISTRICT COUNCIL.ERECTION OF 50 HOUSES AT WATERGATE ESTATE,  
CROOK.

## CONTRACT NO. 8—50 HOUSES.

The Council are prepared to receive FIRM-PRICE TENDERS for the ERECTION of 50 HOUSES, and the Execution of Incidental Work in connection therewith, at the Watergate Estate, Crook, from Plans prepared by MESSRS. T. A. PAGE, SON AND HILL, F.R.I.B.A., Chartered Architects, 75 King Street, South Shields, Co. Durham.

Contractors desirous of having copies of the Bills of Quantities for tendering are requested to forward their names and addresses, together with a cheque for £2 2s. (which will be returned on receipt of a bona-fide Tender), to the Clerk of the Council, on or before the 14th SEPTEMBER, 1960.

F. J. PEARSON,  
Clerk of the Council.

Council Offices,  
Glenholme,  
Crook,  
Co. Durham.

CHAPEL-EN-LE-FRITH RURAL DISTRICT  
COUNCIL.

FIXED-PRICE TENDERS are invited from recognised civil engineering or building contractors for the FOLLOWING WORK:

(a) Construction of Roads, approx. 550 super. yd., Derwent Square, Chelney.

(b) Provision of 4in. and 3in. Cast-Iron Water Main, for New Housing Development at Sandiway Head, Buxton Road, Chapel-en-le-Frith.

Specifications, Bills of Quantities and Form of Tender may be obtained from the Engineer and Surveyor at the address below on payment of a deposit of £2 2s., which will be returned on receipt of a bona-fide Tender, or the return of all documents.

Conditions of Contract may be examined at the Office of the Clerk of the Council.

Tenders, in a sealed envelope marked "Roads and Water Main," to be received by me not later than 1st OCTOBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

G. E. J. ASHWORTH,  
Clerk of the Council.

Council Offices,  
Hayfield Road,  
Chapel-en-le-Frith,  
Via Stockport,  
1st September, 1960.

## CONTRACTS

## COUNTY BOROUGH OF DUDLEY.

## WADDAMS POOL IMPROVEMENT.

Applications to TENDER are invited for the ABOVE CONTRACT. The work comprises approx. 4,000 cu. yd. of Excavation, 150 sq. yd. of Retaining Walls, 420 sq. yd. of Pitched Foundation and Macadam Surfacing, and ancillary works.

Application for Tender documents should be addressed to the Borough Engineer and Surveyor, Council House, Dudley, Worcs., accompanied by a deposit of £2 2s., which will be returned upon receipt of a bona-fide Tender not subsequently withdrawn, and the return of the documents.

The latest date for receipt of applications is FRIDAY, 23rd September, 1960, and Tender documents will be forwarded as soon as possible after that date.

P. D. WADSWORTH,  
Town Clerk.

The Council House,  
Dudley, Worcs.,  
26th August, 1960.

## BOROUGH OF BEBINGTON.

## HIGHWAYS ACT, 1959.

## HIGH STREET, BROMBOROUGH.

TENDERS are invited for the MAKING-UP of approx. 200 lin. yd. of MACADAM CARRIAGEWAY and Flagged Footpaths in the ABOVE ROAD.

Forms of Tender, Specification and Bill of Quantities may be obtained from, and Plans inspected at, the Office of the Borough Engineer and Surveyor, Town Hall, Bebington, Cheshire, on the deposit of £2 2s. refundable on receipt of a bona-fide Tender.

Tenders, in plain sealed envelopes endorsed "Tender—High Street," should be received by the undersigned not later than Noon on FRIDAY, 23rd September, 1960.

The Corporation does not bind itself to accept the lowest or any Tender.

G. CHAPPELL,  
Town Clerk.

Town Hall,  
Bebington.

## BOROUGH OF PORT TALBOT.

ROAD COMPLETION WORKS—LITTLE WARREN,  
SITWELL WAY.

THE CORPORATION invites TENDERS for the ABOVE SCHEME, which comprises the FOLLOWING WORKS:

680 lin. yd. 10in. x 5in. Kerbing and Channelling;

20 Gully Pots;

2,600 super. yd. Tarmac and ancillary works.

Plans may be inspected at the Municipal Buildings, Port Talbot, and the Specification, Bills of Quantities and Form of Tender may be obtained on application to the Borough Engineer, MR. G. V. GRIFFITHS, A.M.I.C.E., on payment of a deposit of £2 2s., which will be returned on receipt of a bona-fide Tender and return of any documents loaned.

Completed Tenders, in plain envelopes endorsed "Completion Works—Sitwell Way," are to be received by the undersigned not later than Noon, 19th SEPTEMBER, 1960.

The Council does not bind itself to accept the lowest or any Tender.

W. KING DAVIES,  
Town Clerk.

Municipal Buildings,  
Port Talbot,  
31st August, 1960.

## BOROUGH OF PORT TALBOT.

WATER SUPPLY TO BRITISH OXYGEN GASES CO.,  
LONGLANDS LANE, MARGAM.

TENDERS are invited for the PROVISION of approx. 1,700 yd. of 12in. CAST-IRON PIPE.

Drawings may be inspected at the Municipal Buildings, Port Talbot, and Specification, Bills of Quantities and Form of Tender may be obtained from MR. G. V. GRIFFITHS, A.M.I.C.E., Borough Engineer, on payment of a deposit of £2 2s., which will be refunded to unsuccessful tenderers.

Tenders to reach the undersigned not later than Noon on 19th SEPTEMBER, 1960.

W. KING DAVIES,  
Town Clerk.

Municipal Buildings,  
Port Talbot,  
31st August, 1960.

LEITCHWORTH URBAN DISTRICT  
COUNCIL.

## DISTRICT ROADS PROGRAMME.

TENDERS are invited for VARIOUS WORKS under the District Roads Programme, 1960-61. The Tender will take the form of a priced Schedule of Rates, and the approved contractors may be required to carry out any part of the programme.

Documents may be obtained from MR. E. L. JOHNSON, M.I.Mun.E., The Engineer and Surveyor, The Council House, Leitchworth, upon payment of £3 3s. deposit, refundable on receipt of a bona-fide Tender, and Conditions of Contract and Drawings may be inspected in this Office during normal working hours.

Tenders, in the envelopes provided, should be returned not later than First Post on FRIDAY, 30th September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

H. PLINSTON,  
Clerk of the Council.

The Council House,  
Leitchworth, Herts.

LEITCHWORTH URBAN DISTRICT  
COUNCIL.

## SURFACE WATER SEWER.

TENDERS are invited for the CONSTRUCTION of approx. 34 lin. yd. of 27in. dia. THICK WALL CONCRETE PIPES and 25 lin. yd. of 24in. dia. THICK WALL CONCRETE PIPES, together with all ancillary works.

Documents may be obtained from MR. E. L. JOHNSON, M.I.Mun.E., The Council House, Leitchworth, upon payment of £2 2s. deposit, refundable on receipt of a bona-fide Tender, and Conditions of Contract and Drawings may be inspected in this Office during normal working hours.

Tenders, in the envelopes provided, should be returned not later than First Post on FRIDAY, 30th September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

H. PLINSTON,  
Clerk of the Council.

The Council House,  
Leitchworth, Herts.

CONTRACTS

CITY OF GLOUCESTER.

CONSTRUCTION OF SECTION OF INTERNAL BY-PASS (ACROSS LORRY PARK).

TENDERS are invited for approx. 230yd. of 33ft. CARRIAGEWAY, 10ft. FOOTWAYS, and ancillary works.

Form of Tender, Conditions of Contract, Specification and Bill of Quantities may be obtained from the City Engineer and Surveyor, 21 Eastgate Street, Gloucester, on receipt of a deposit of Two Guineas, which will be returned on receipt of a bona-fide Tender not subsequently withdrawn.

The Tender, enclosed in a plain sealed envelope endorsed "Tender for Lorry Park Road," is to be delivered to the undersigned not later than 10 a.m. on WEDNESDAY, 28th September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

A. G. W. BOGGOON, Town Clerk.

Gulldhall, Gloucester.

CITY OF CARDIFF.

CITY ARCHITECT'S DEPARTMENT.

PROPOSED COUNTY PRIMARY SCHOOL—PEN-YR-HEOL.

FIXED-PRICE TENDERS are invited for the CONSTRUCTION OF A NEW COUNTY PRIMARY TWO-FORM ENTRY SCHOOL for 540 Pupils at Pen-yr-Heol, Ilanrummy, Cardiff.

The School is of One- and Two-storey Construction with a Floor Area of approx. 21,607 sq. ft.

Tender documents will be available on the 9th September, 1960.

Conditions of Contract, Drawings and Specification may be inspected at the City Architect's Department, Municipal Offices, Greyfriars Road, Cardiff.

Specification, Bills of Quantities and Form of Tender may be obtained from the City Architect, to whom application should be made, accompanied by a deposit of £2 2s. Cheques should be made payable to the Cardiff Corporation and crossed "Not Negotiable and Co." The deposit will be refunded on receipt of a bona-fide Tender or the return of the Contract documents.

Tenders will not be considered unless enclosed in the envelope provided and endorsed "Tender for Pen-yr-Heol C.P. School," addressed to the Town Clerk at the City Hall, Cardiff, and sent by Registered Post so as to be received not later than the 29th SEPTEMBER, 1960.

The envelope must not bear the name of, or any mark indicating the identity of, the tenderer.

Completed Bills of Quantities are not to be submitted with the Tender, but must be sent completed in ink, so as to be in the hands of the City Architect within three days after written request following the opening of the Tenders.

The Council does not bind itself to accept the lowest or any Tender.

S. TAPPER-JONES, Town Clerk.

City Hall, Cardiff, September, 1960.

EPHING URBAN DISTRICT COUNCIL.

HOUSING ESTATES.

FENCING AND CONCRETE PATHS.

TENDERS are invited for the ERECTION AND REPAIR OF FENCING, and the LAYING AND REPAIR OF CONCRETE PATHS at VARIOUS HOUSING ESTATES in Epping.

Tender Forms and Bills of Quantity can be obtained from the Council's Surveyor, 91 High Street, Epping, to whom all inquiries should be addressed.

Tenders, in plain, sealed envelopes endorsed "Fencing and Lighting; Surface Water Drainage; and all ancillary works," must be delivered to me not later than 9 a.m. on SATURDAY, 24th September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

B. HISCOTT, Clerk of the Council.

Council Offices, Hawthorn Lodge, 91 High Street, Epping, Essex, 31st August, 1960.

EPHING URBAN DISTRICT COUNCIL.

PRIVATE STREET WORKS.

NICHOLL ROAD.

FIXED-PRICE TENDER.

TENDERS are invited for the MAKING-UP of a PORTION OF NICHOLL ROAD, Epping.

The work consists of Kerbing; Machine Laying Bituminous Gravel; Construction of Footpaths in Tar Fencing; Street Lighting; Surface Water Drainage; and all ancillary works.

Bills of Quantities and Forms of Tender may be obtained on application to the undersigned, accompanied by a deposit of £2 2s., which will be refunded on receipt of a bona-fide Tender not subsequently withdrawn, and the return of all documents.

Drawing and Conditions of Contract may be inspected at the Office of the Surveyor, 91 High Street, Epping.

Tenders, in plain sealed envelopes endorsed "Tender for Private Street Works—Nicholl Road," bearing no name or mark indicating the sender, must be delivered to me not later than 9 a.m. on THURSDAY, 29th September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

B. HISCOTT, Clerk of the Council.

Hawthorn Lodge, 91 High Street, Epping, Essex, 31st August, 1960.

THE NORTHWICH RURAL DISTRICT COUNCIL.

HOUSING TENDERS.

TENDERS are invited for the ERECTION OF 28 DWELLINGS on a SITE off WESSEX DRIVE, Rudheath.

Copies of the Specification, Plans, etc., may be obtained from the Engineer and Surveyor, Whitehall, Hartford, Northwich, upon payment of Two Guineas, which will be refunded on receipt of a bona-fide Tender not subsequently withdrawn, and the return of all documents.

Sealed Tenders, in the envelope supplied, bearing no name or mark indicating the sender, must be delivered not later than 10 a.m. on THURSDAY, the 8th October, 1960, to the CLERK OF THE COUNCIL, Whitehall, Hartford, Northwich, Cheshire.

CONTRACTS

COUNTY BOROUGH OF EAST HAM.

ROAD SURFACING.

TENDERS invited for BURNING OFF and SUPPLYING and LAYING OF HOT ROLLED ASPHALT (4,000yds. super.) to part of the EAST HAM/BARKING BY-PASS.

Tender and Specification obtainable from the BOROUGH ENGINEER upon receipt of a deposit of £2 2s., and returnable by 12 Noon on 19th SEPTEMBER, 1960.

The Corporation do not bind themselves to accept the lowest or any Tender.

BOROUGH OF BRIDGWATER.

COLLEY LANE INDUSTRIAL SITE.

CONSTRUCTION OF ROADS AND SEWERS—PHASE I.

TENDERS are invited for the CONSTRUCTION OF THE ABOVE WORKS, comprising approx. 2,530 sq. yd. of 9in. Reinforced Concrete Carriageway, 450 sq. yd. of Tarmacadam Carriageway, 1,450 sq. yd. of Tarmacadam Footpath, 640 lin. yd. of 6in.-36in. dia. Sewers, 650 lin. yd. of 3in. and 6in. Water Mains, and incidental works.

Further particulars and documents may be obtained from Borough Engineer, Town Hall, Bridgwater, on payment of a £2 2s. deposit. Closing date for receipt of Tenders is 10 a.m., SATURDAY, 24th September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

H. A. CLIDERO, Town Clerk.

Town Hall, Bridgwater, 1st September, 1960.

CITY OF CARDIFF.

CITY SURVEYOR'S DEPARTMENT.

FIXED-PRICE TENDERS are invited for PROVISION AND ERECTION OF GATES AND CHAIN LINK FENCING, WESTERN CEMETERY, ELY, Cardiff.

Conditions of Tender, Specification and Drawings may be obtained from the City Surveyor, to whom application should be made, accompanied by a deposit of the sum of £2 2s. Cheques should be made payable to the Cardiff Corporation and crossed "Not Negotiable and Co."

The deposit will be refunded on receipt of a bona-fide Tender or the return of the Contract documents by the closing date.

Tenders will not be considered unless enclosed in a plain sealed envelope endorsed "Tender for Erection of Chain Link Fencing, Western Cemetery," addressed to the undersigned at the City Hall, Cardiff, and sent by Registered Post so as to be received not later than 5th OCTOBER, 1960.

The envelope must not bear the name of, or any mark indicating the identity of, the tenderer.

The Council does not bind itself to accept the lowest or any Tender.

S. TAPPER-JONES, Town Clerk.

URBAN DISTRICT COUNCIL OF COULDSOON AND PURLEY.

HIGHWAY IMPROVEMENT JUNCTION OF MITCHELEY AVENUE/MITCHELEY HILL AND RECTORY PARK, SANDERSTEAD.

TENDERS are invited for the ABOVE WORKS. Bills of Quantities and Forms of Tender, prepared by H. M. COLLINS, A.M.I.C.E., may be obtained from him upon deposit of £3 3s., which will be refunded upon receipt of bona-fide Tenders.

Plans, Specifications and Conditions of Contract may be inspected at the Council Offices. Sealed Tenders, in the envelopes provided, must be delivered to the undersigned not later than First Post on MONDAY, 26th September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

ERIC F. J. FELIX, Clerk of the Council.

Council Offices, Purley, Surrey.

NORTH COTSWOLD RURAL DISTRICT COUNCIL.

The North Cotswold Rural District Council invites FIXED-PRICE TENDERS for the ERECTION OF EIGHT DWELLINGS (4 Houses and 4 Old People's Bungalows) at LITTLEWORTH ESTATE, Chipping Campden.

Applications for Bills of Quantities, Conditions of Contract and Tender Forms should be made to the undersigned not later than 17th SEPTEMBER, 1960.

Applications should be accompanied by a deposit of Two Guineas, which will be returned upon receipt of a bona-fide Tender not withdrawn.

Plans can be inspected at the Council Offices or at the Offices of the Council's Consulting Architects, MESSRS. PEMBERTON AND BATEMAN, 21 Vine Street, Evesham, Worcs.

Tenders are to be delivered to the undersigned, in plain sealed envelopes marked "Tender for Dwellings—Chipping Campden." Applicants will be notified of the latest date for the submission of the Tenders at the same time as they receive the Bills of Quantities, etc.

The Council does not bind itself to accept the lowest or any Tender.

F. NETTLETON, Clerk of the Council.

Council Offices, Moreton-in-Marsh, Glos.

30th August, 1960.

DEE AND CLWYD RIVER BOARD.

QUEENSFERRY BY-PASS PUMPING STATION.

TENDERS are invited, on a Fixed-price Basis, from civil engineering contractors having experience of similar works, for the CONSTRUCTION OF A PUMP-HOUSE AND SUB-STATION, Concrete Culverts and Waterways, and Tidal Outfall with Steel Sheet Piling, at Queensferry, approx. Five Miles west of Chester.

Copies of the relevant Drawings and documents can be obtained from the Board's Consulting Engineers, MESSRS. ROFE AND RAFFETY, 9 Brewer's Green, Westminster, London, S.W.1, on payment of a deposit of £3 5s. (by crossed cheque only payable to the Board), returnable on the submission of a bona-fide Tender.

Tenders, in plain sealed envelopes, bearing no indication of the sender, endorsed "Queensferry Pumping Station," must be delivered to the undersigned not later than 12 Noon on FRIDAY, 7th October, 1960.

The Board does not bind itself to accept the lowest or any Tender.

GERALD A. WRIGHT, Executive Officer and Clerk.

2 Vicar's Lane, Chester.

CONTRACTS

COUNTY BOROUGH OF WALSALL.

PUBLIC WORKS DEPT.

ERECTION OF 28 FLATS—ELY PLACE, ALUMWELL ROAD HOUSING SITE, WALSALL.

FIXED-PRICE TENDERS are invited for the ERECTION AND COMPLETION OF 28 TWO-BEDROOM FLATS in Blocks of Four on the ABOVE SITE.

Forms of Tender and appropriate documents can be obtained from the undersigned on the deposit of Two Guineas, returnable on receipt of a bona-fide Tender.

Tenders must be sent in a sealed envelope addressed to the Town Clerk, Council House, Walsall, bearing the words "28 Flats—Ely Place," and are to be received not later than 12 Noon on WEDNESDAY, 21st September, 1960.

Any Tender received after the time stated, or otherwise than in an envelope endorsed as required, may be rejected.

An envelope suitably addressed and endorsed will be supplied with the Form of Tender, and it is desired that this envelope be used.

The Council do not bind themselves to accept the lowest or any Tender.

M. E. HABERSHON, Borough Engineer and Surveyor.

Council House, Walsall, 23rd August, 1960.

COUNTY BOROUGH OF BLACKPOOL.

PRIVATE STREET WORKS.

TENDERS (by 2.30 p.m. on FRIDAY, 23rd September, 1960) are invited for the MAKING-UP OF FIVE PRIVATE STREETS (approx. length 230 lin. yd.).

Particulars from BOROUGH SURVEYOR (ARTHUR HAMILTON, B.Sc.), P.O. Box 17, Municipal Offices, Blackpool, on payment of £2 deposit.

BIRMINGHAM CITY TRANSPORT.

TENDERS FOR UNIFORM CLOTHING, OVERALLS AND MACKINTOSHES FOR THE VARIOUS DEPARTMENTS OF THE CORPORATION.

The TRANSPORT COMMITTEE invite TENDERS for the SUPPLY of the ABOVE during 1961, full particulars of which may be obtained upon application to the undersigned.

Tenders must be enclosed in the official endorsed envelope, sealed, and delivered to the Town Clerk's Department, Room M43, Council House, Birmingham, 1, not later than 12 Noon on THURSDAY, 29th September, 1960.

W. H. SMITH, General Manager.

Birmingham City Transport, Council House, Congreve Street, Birmingham, 3.

FAREHAM URBAN DISTRICT COUNCIL.

WINNARDS PARK ESTATE EXTENSION—ACCESS ROADS, PATHS AND GRASSING.

TENDERS invited for CONSTRUCTION OF 70 sq. yd. ACCESS ROAD, 1,750 sq. yd. FOOTPATH, and 6,050 sq. yd. GRASSING at WINNARDS PARK ESTATE, SARISBURY. Documents from Engineer and Surveyor, Westbury Manor, Fareham, on deposit of £2. Tenders to me by 10 a.m., 27th SEPTEMBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

B. W. RANDS, Clerk to the Council.

"Merton," 5 Grove Road, Fareham, Hants.

STROUD URBAN DISTRICT COUNCIL.

LONDON ROAD DEPOT.

TENDERS are invited for the SUPPLY AND ERECTION OF CONCRETE PREFABRICATED BUILDINGS.

Details and Form of Tender may be obtained from the Engineer and Surveyor to the Council. Tenders, in sealed envelopes, marked "Depot Buildings," should be sent to the undersigned not later than WEDNESDAY, 28th September, 1960. The Council do not bind themselves to accept the lowest or any Tender.

H. S. GIBBONS, Clerk to the Council.

Council Chambers, High Street, Stroud.

STAFFORDSHIRE POTTERIES WATER BOARD.

TITTESWORTH RESERVOIR SCHEME.

CONTRACT NO. 41—30IN. DIA. MAIN

The Board invite TENDERS from experienced civil engineering and public works contractors for the LAYING OF approx. 7,600 lin. yd. of 30in. nominal dia. STEEL BITUMEN LINED AND SHEATHED WATER MAIN with VIKING JOHNSON COUPLINGS from TITTESWORTH RESERVOIR to LADDERED RESERVOIR, near Leek, in the County of Stafford.

The Forms of Tender, Conditions of Contract, Specification and Bills of Quantities may be obtained from the undersigned on deposit of a cheque for Five Guineas, which will be returned on receipt of a bona-fide Tender, not subsequently withdrawn.

Two separate Tenders are required:—

(1) Tender with variations in wages and materials.

(2) Tender on fixed-price basis without variations in wages and materials.

The two Forms of Tender and annexed documents, completed on the alternative bases mentioned above, must be enclosed in the plain envelope provided, endorsed "Tender for 30in. dia. Main—Contract No. 41," and addressed to the Chairman, Staffordshire Water Board, c/o Engineer and Manager's Office, Albion Street, Hanley, Stoke-on-Trent, and delivered not later than 12 Noon on MONDAY, 10th October, 1960.

The sealed envelope must not bear any name or mark indicating the sender. At the same time, copies of the Bill of Quantities, completely priced on each of the alternative bases mentioned above, must be delivered in one separate sealed envelope, similarly addressed, and endorsed "Priced Bills for Contract No. 41," and bearing the tenderer's name.

Tenders which do not comply with the above requirements will not be considered. The Board do not bind themselves to accept the lowest or any Tender.

C. V. BROWN, M.I.C.E., M.I.Mech.E., M.I.W.E., Engineer and Manager and Clerk to the Board.

Albion Street, Hanley, Stoke-on-Trent.



## CONTRACTS

## COUNTY BOROUGH OF MIDDLESBROUGH.

EASTERSIDE—32 DWELLINGS AND 11 GARAGES.

TENDERS are invited for the ERECTION of the ABOVE DWELLINGS and GARAGES. Bills of Quantities from Borough Engineer, Municipal Buildings, Middlesbrough. Deposit Two Guineas. Tenders to be received by TOWN CLERK on or before MONDAY, 10th October, 1960.

## BOROUGH OF WOOD GREEN. RECONSTRUCTION OF SURFACE WATER SEWER—AVENUE GARDENS.

TENDERS are invited for the RECONSTRUCTION of approx. 170 lin. yd. of SURFACE WATER SEWER across AVENUE GARDENS, STATION ROAD, N.22, using 12in. G.S.W. PIPES. The works include the Construction of One Precast Concrete Manhole and the Reconstruction of Two existing Manholes. The Drawings may be inspected at, and the contract documents obtained from, the Office of the Borough Engineer, Town Hall, Wood Green, N.22. Tenders, in plain sealed envelopes, endorsed "Tender for Reconstruction of Sewer—Avenue Gardens," but bearing no name or mark indicating the sender, must be returned to the undersigned not later than 12 Noon on THURSDAY, 6th October, 1960.

G. W. PLATER,  
Town Clerk.

Town Hall,  
Wood Green, N.22.  
September, 1960.

## BOROUGH OF MORLEY.

TO PUBLIC WORKS CONTRACTORS.

TENDERS are invited for RESURFACING with TWO-COURSE HOT ROLLED ASPHALT, total thickness 3½ in., on A.55 WHITEHALL ROAD TRUNK ROAD (Drighlington Crossroads to Cockersdale), an area of approx. 14,000 sq. yd.

Specification and Bill of Quantities to be obtained from the Borough Engineer's Office, Town Hall, Morley. Applications to be accompanied by a deposit of £2 2s., returnable on receipt of bona-fide Tender. Tenders, sealed and endorsed "Whitehall Road Resurfacing," to reach the undersigned not later than First Post on MONDAY, 19th September, 1960.

E. V. FINNIGAN,  
Town Clerk.

Town Hall,  
Morley.

## BOROUGH OF ROWLEY REGIS.

PROPOSED EXTENSION TO WHITEHALL GARDENS.

TENDERS are invited for the BULK EXCAVATION and DISPOSAL to Council tip of approx. 6,000 cu. yd. of MATERIAL and the SPREADING and LEVELLING of 1,250 cu. yd. on SITE.

Tender documents may be obtained from the Borough Engineer and Surveyor, S. C. WOOD, M.I.Mun.E., at the address below, on payment of a deposit of £2 2s., which will be refunded on receipt of a bona-fide Tender, not afterwards withdrawn. The Tender must be sent to the undersigned in the envelope provided, endorsed "Bulk Excavation—Whitehall Gardens," so as to arrive not later than Noon on the 5th October, 1960.

JOHN HILTON,  
Town Clerk.

Municipal Buildings,  
Old Hill, Staffs.

## CITY OF SALFORD.

TRINITY CLEARANCE AREAS NOS. 7 AND 8.

TENDERS are invited for the DEMOLITION and DISPOSAL of 136 HOUSES in the ABOVE CLEARANCE AREAS.

Plans and Specifications may be seen at, and Forms of Tender obtained from, the City Engineer and Surveyor, Town Hall, Salford. Tenders should be returned on or before Noon, MONDAY, 19th September, 1960.

R. RIBBLESDALE THORNTON,  
Town Clerk.

## CITY OF CAMBRIDGE.

COMMITTEE FOR EDUCATION.

TO BUILDERS.

FIXED-PRICE TENDERS are invited for the ERECTION of a PHYSICS LABORATORY, SCIENCE DEMONSTRATION ROOM and associated ACCOMMODATION at the GRAMMAR SCHOOL FOR GIRLS, MUD LANE SITE (Phase 2, Section 2B).

The contract comprises Site Clearance, Construction of Floor Slab to receive timber-framed and clad superstructure, together with the Provision of Services and Finishes, including Laboratory Benches and Fittings. The floor area of the new building is approx. 1,800 sq. yd.

Applications for Specifications should be submitted to the City Surveyor, The Guildhall, Cambridge, not later than 12th SEPTEMBER. Documents will be issued on the 19th SEPTEMBER, and Tenders must be submitted not later than 17th OCTOBER, 1960. The starting date on site is provisionally fixed for early January, 1961. The Council is not bound to accept the lowest or any Tender.

A. H. I. SWIFT,  
Town Clerk.

The Guildhall,  
Cambridge.

## BARNET URBAN DISTRICT COUNCIL.

RELIEF SURFACE WATER SEWER—EAST VIEW.

The Council invite TENDERS for the CONSTRUCTION of approx. 150 yd. of 21in. PRECAST CONCRETE PIPE SURFACE WATER SEWER, together with PRECAST CONCRETE MANHOLE, BRICK MANHOLE and BRICK OUTFALL, and other works incidental thereto, sited partly in highway and partly in private property.

Conditions of Contract and Drawings may be inspected and Specification of Works, Bill of Quantities and Form of Tender obtained on application to the Engineer and Surveyor of the Council, Ravenscroft House, Wood Street, Barnet, on any day (Saturdays excepted) between the hours of 9 a.m. and 5 p.m.

Sealed Tenders must be delivered to the undersigned not later than 12 Noon on SATURDAY, the 17th September, 1960, and marked in the left-hand corner of the envelope "Relief Surface Water Sewer—East View."

The Council does not bind itself to accept the lowest or any Tender.

ALFRED S. MAYES,  
Clerk of the Council.

Municipal Offices,  
Wood Street,  
Barnet, Herts.  
30th August, 1960.

## CONTRACTS

## MINISTRY OF TRANSPORT.

THE DARTFORD TUNNEL—FINISHINGS. VENTILATION BUILDINGS AND SERVICES.

The MINISTER OF TRANSPORT invites TENDERS from experienced contractors for the FOLLOWING WORKS, to be comprised in one contract:—

- (1) Furnishing the Tunnel, about 1,560 yd. long, with a Concrete Lining, a Reinforced Concrete Road Deck with Paving and Footways, Wall Finishings and a Suspended Ceiling.
- (2) Furnishing the Open Cut Approaches, each about 210 yd. long, with Paved Carriageways, Footways, Precast Concrete Slab Facings and Copings, Suspended Sun Visors, etc.
- (3) Constructing Two Ventilation Buildings with Reinforced Concrete Exhaust Shafts and other special features.
- (4) Providing and installing (principally through the engagement of nominated sub-contractors) Equipment for electricity distribution, lighting, tunnel services and pumping.
- (5) Ancillary works, including Completion of Access Shafts, Passages and Pump Chambers, and the Construction of Access Shafts.

Copies of the contract documents may be obtained from the Consulting Engineers, Messrs. MOTT, HAY AND ANDERSON, of 9 Idlesleigh House, Caxton Street, Westminster, London, S.W.1, on payment of a deposit of £50, by cheque made payable to the Ministry of Transport. The deposit will be returned if a bona-fide Tender is submitted and not subsequently withdrawn.

Tenders should be sent, in a plain, sealed, registered envelope, marked "Tender for Dartford Tunnel—Contract No. 7," and addressed to the Assistant Secretary, Highways Management and Services Division, Ministry of Transport, 21/37 Hereford Road, London, W.2, to arrive not later than 4 p.m. on WEDNESDAY, 19th October, 1960.

The Minister does not bind himself to accept the lowest or any Tender.

G. G. D. HILL,  
An Assistant Secretary.

## COUNTY COUNCIL OF DURHAM.

TENDERS invited for SUPPLY of the FOLLOWING:

- (1) (a) Machinery and Equipment to Hebburn Technical College.
- (b) Cooling Equipment to Hebburn Technical College.
- (2) Machinery to Bowes Museum.

Forms of Tender returnable by 23rd SEPTEMBER, 1960, and details from undersigned.

G. H. METCALFE,  
Director of Education.

Shire Hall,  
Durham.

29th August, 1960.

## CITY OF MANCHESTER.

HOUSING COMMITTEE.

TENDERS invited (returnable Noon, 29th SEPTEMBER, 1960) for ERECTION of the FOLLOWING: CONTRACT 346.—Crosscres Road, Wythenshawe, 12 Dwellings.

CONTRACT 349.—Handforth, 720 Dwellings. Particulars and documents obtainable from DIRECTOR OF HOUSING, Town Hall, Manchester, 2.

## CITY OF MANCHESTER.

TENDERS are re-invited for the SUPPLY of FLUORESCENT TUBES during the period 1st November, 1960, to 31st October, 1961.

Tender Forms, returnable by 20th SEPTEMBER, 1960, from CITY SURVEYOR, Town Hall, Manchester, 2.

## CITY OF MANCHESTER.

ANNUAL STORES TENDERS.

TENDERS are invited for the SUPPLY of the UNDERMENTIONED ITEMS during the period 1st January, 1961, to 31st December, 1961:—

- Asphaltic Bitumen Road Emulsion.
- Bolalard and Transport Batteries.
- Brushmaking Material.
- Calcium Chloride Solution.
- Cinders.
- Fine Cold Asphalt.
- Glazed Ware Sewer Pipes.
- Hire of Motor Wagons.
- Limestone Chatter.
- Ozald Paper and Cloth for Photographic Purposes.
- Reinforcement Fabric and Dowel Bars.
- Road Danger Lamps.
- Ready Mixed Concrete.
- Salt for Snow Clearance.
- Slate Filled Bitumen.
- Street Grids and Cappings.
- Waterproof Paper for Contracting.
- Wet-mix.

Tender Forms, returnable by 20th SEPTEMBER, 1960, from the CITY SURVEYOR, Town Hall, Manchester, 2.

## CITY OF SHEFFIELD.

TENDERS are invited for the UNDERMENTIONED SUPPLIES to all Departments of the Sheffield Corporation from October 1st, 1960, viz.:

- Groceries.
- Meat.
- Tea.
- Coffee.
- Bread.
- Flour.
- Provisions and Bacon.

The necessary Forms of Tender may be obtained on application to the Town Clerk, Town Hall, Sheffield, to whom completed Forms of Tender must be delivered not later than 10 a.m. on FRIDAY, 16th September, 1960.

JOHN HEYS,  
Town Clerk.

Town Hall,  
Sheffield.

1st September, 1960.

## HIGHAM FERRERS AND RUSHDEN WATER BOARD.

DITCHFORD SCHEME—CONTRACT NO. 7.

TENDERS are invited for the LAYING of about 700 yd. of CONCRETE INTAKE DUCTS in WATER-BEARING GRAVELS, and the CONSTRUCTION of REINFORCED CONCRETE STORAGE, TREATMENT and FILTER TANKS, together with Administration Building and Access Works for a Water Treatment Plant with a capacity of 750,000 gallons per day, at RUSHDEN, Northants.

Tender documents may be obtained at my Office, or at the Office of the Engineers, MESSRS. BINNIE, DEACON AND GOURLEY, Artillery House, Artillery Row, Westminster, S.W.1, on payment of a deposit of Five Pounds, which will be returned on receipt of a bona-fide Tender.

Tenders must be delivered to me before Noon on FRIDAY, 7th October, 1960.

A. G. CROWDY,  
Clerk to the Board.

Council Buildings,  
Rushden.

## CONTRACTS

## STAFFORDSHIRE COUNTY COUNCIL.

TENDERS are invited for the CONSTRUCTION of DUAL CARRIAGEWAYS for a distance of approx. 1½ miles on the EXETER-LEEDS TRUNK ROAD (Lichfield—Burton-on-Trent, A.38), from SOUTH of ALREWS to WYCHNOR FARM.

The work includes the Reconstruction in Reinforced Concrete of Three Flood Bridges and a River Bridge; the Widening of Bridges over the River Trent and an arm of the Trent and Mersey Canal; Construction of Embankments, Broken Stone Carriageway Base, Bitumen Macadam Base Course and Hot Rolled Asphalt Wearing Course.

Copies of the Specification and Bill of Quantities can be obtained from the undersigned on payment of a deposit of £5, which will be refunded on receipt of a bona-fide Tender or on return of the documents before the closing date.

Tenders, endorsed "A.38—Alrews to Wychnor," and bearing no indication of the name of the sender, should be returned to the undersigned not later than 10 a.m. on the 10th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

T. H. EVANS,  
Clerk of the County Council.

County Buildings,  
Stafford.

## COUNTY BOROUGH OF BURY.

TENDERS invited for SUPPLY, DELIVERY and MECHANICAL LAYING of approx. 9,800 sq. yd. of SINGLE COURSE FINE COLD ASPHALT.

Documents, etc., obtainable from Borough Engineer, Town Hall, Bury.

Tenders, enclosed in plain sealed envelope, endorsed "Cold Asphalt," must reach me by 24th SEPTEMBER, 1960.

EDWARD S. SMITH,  
Town Clerk.

Town Hall,  
Bury.

1st September, 1960.

## BOROUGH OF SURBITON.

FENCING—FISHPONDS ESTATE, SURBITON.

TENDERS are invited for the ERECTION of various types of new FENCING in accordance with the Plans, Specification, Bills of Quantities and General Conditions of Contract, which may be obtained from the Office of Mr. R. THIRLWAY, M.I.Mun.E., M.I.Struct.E., Borough Engineer and Surveyor, Council Offices, Ewell Road, Surbiton.

Tenders, on the form provided, enclosed in the endorsed envelope provided, and bearing no name or mark indicating the sender, must be delivered to the undersigned and received by him not later than 5 p.m. on 30th SEPTEMBER, 1960.

The Corporation do not bind themselves to accept the lowest or any Tender.

JOHN H. A. CRUNDELL,  
Town Clerk.

## BOROUGH OF SURBITON.

DISTRICT ROAD CARRIAGEWAYS.

TENDERS are invited for the RESEALING of JOINTS in CONCRETE CARRIAGEWAYS in accordance with the Specification, Bills of Quantities and General Conditions of Contract, which may be obtained from the Office of Mr. R. THIRLWAY, M.I.Mun.E., M.I.Struct.E., Borough Engineer and Surveyor, Council Offices, Ewell Road, Surbiton.

Tenders, on the form provided, enclosed in the endorsed envelope provided, and bearing no name or mark indicating the sender, must be delivered to the undersigned and received by him not later than 5 p.m. on FRIDAY, 30th September, 1960.

The Corporation do not bind themselves to accept the lowest or any Tender.

JOHN H. A. CRUNDELL,  
Town Clerk.

## MATLOCK URBAN DISTRICT COUNCIL.

DARLEY DALE SEWERAGE—CONTRACT D.D.2.

TENDERS are invited, on a Fixed-price Basis, for the LAYING of SEWERS and the CONSTRUCTION of PUMPING STATIONS in Darley Dale.

The work will include about 1½ miles of 18in. Concrete Sewers; ½-mile of 15in. Concrete Sewers; 12in. Concrete (depths to 15ft.); 5 miles of 9in. Salt-glazed Ware; ½-mile of 6in. Salt-glazed Ware; Short Lengths of 24in. and 21in. Concrete Sewers; and about ½-mile of 12in. Iron Sewers, and ½-mile each of 10in., 8in., 6in. and 4in. Iron Sewers and Pumping Mains, together with all Manholes (mostly Concrete Tube), Storm Overflows, Pipeline Crossing under the River Derwent, Three Crossings under the Railway, and various Stream Crossings. It will also include Four Pumping Stations with Substructures in Reinforced Concrete, down to 26ft. in depth, and Superstructures in Brickwork with Stone Facings.

Tendering documents (including Drawings) will be available towards the end of September, and may be obtained from the Council's Consulting Engineers, MESSRS. W. H. RADFORD AND SON, 57 Goldsmith Street, Nottingham. Every application must be accompanied by a deposit cheque for Six Guineas, payable to the Matlock Urban District Council. The deposit will be repaid after receipt of a bona-fide Tender.

Tenders are to be delivered to my Office by 14th NOVEMBER, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

J. OWEN HUNT,  
Solicitor and Clerk of the Council.

Town Hall,  
Matlock.

Derbyshire, 1960.

## ATCHAM RURAL DISTRICT COUNCIL.

WEST ATCHAM WATER SCHEME—PONTESFORD HILL EXTENSIONS.

TENDERS are invited for the CONSTRUCTION of approx. 2,147 yd. of WATER MAIN, entailing Excavation and the Provision, Laying and Jointing of 3in. Spun-iron Pipes with Tyton Joints and 2in. heavy gauge Cast-iron Pipes with Compression Joints. Tender documents may be obtained from the Office of the Engineer and Surveyor, J. R. SOCKETT, M.B.E., M.I.Mun.E., 24 St. John's Hill, Shrewsbury, on the deposit of One Guinea, which is returnable on the receipt of a bona-fide Tender.

Tenders, in plain sealed envelopes, endorsed "Pontesford Hill Extensions," are to be received by the undersigned not later than Noon on FRIDAY, 30th September, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

W. T. BROWN,  
Deputy Clerk of the Council.

Council Offices,  
24 St. John's Hill,  
Shrewsbury.

1st September, 1960.

## CONTRACTS

## COUNTY BOROUGH OF SOUTHAMPTON.

TENDERS are invited for the ERECTION OF SHOPS and PUBLIC CONVENIENCES at EAST STREET, Southampton.

Forms and particulars (including Bill of Quantities) from Borough Architect on written application by 24th SEPTEMBER, 1960.

R.I.B.A. Contract plus Supplementary Conditions available for inspection.

Tender to TOWN CLERK, Civic Centre, Southampton, by 10 a.m., 31st OCTOBER, 1960.

## BOROUGH OF FINCHLEY.

## PRIVATE STREET WORKS.

MANOR COTTAGES APPROACH, N.2 (SECOND PORTION), LENGTH 330FT.

TENDERS are invited for MAKING-UP the ABOVE-MENTIONED PRIVATE STREET. Drawings and Conditions of Contract may be seen at, and Specification of the Works and Form of Tender obtained from, the Office of the Borough Engineer and Surveyor, 294-296 Regents Park Road, N.3.

A deposit of £2 will be required, which will be returned on receipt of a bona-fide Tender and the return of all documents supplied.

No Tender will be considered unless received in a plain sealed envelope, marked "Tender for Private Street Works—Manor Cottages Approach, N.2 (Second Portion)," and not bearing any name or mark indicating the sender.

Tenders must reach the undersigned not later than 12 Noon on MONDAY, the 26th September, 1960. The Council does not bind itself to accept the lowest or any Tender.

R. M. FRANKLIN,

Town Clerk.

Municipal Offices,  
Finchley, N.3,  
August, 1960.

## BOROUGH OF BEXHILL.

## DEVONSHIRE ROAD RESURFACING.

FIXED-PRICE TENDERS are invited for the RESURFACING OF DEVONSHIRE ROAD, using 4in. Tarmacadam Base Course with a 1in. Carpet and including Breaking-out of Existing Surface comprising a 2in. thickness of Tarmacadam and a 4in. thickness of Woodblock Paving; approx. 5,700 sq. yd.

Specification, Bills of Quantities and Form of Tender may be obtained from the Borough Engineer, Town Hall, Bexhill, Sussex, upon receipt of a deposit of Two Guineas, which will be refunded upon receipt of a bona-fide Tender not subsequently withdrawn, and on the return of all documents supplied. Drawings and General Conditions of Contract may be inspected at the Office of the Borough Engineer during normal working hours.

Tenders, in envelope provided and not bearing any name or mark to indicate the sender, must be delivered to the undersigned not later than 9 a.m. on SATURDAY, 24th September, 1960.

The Council does not bind itself to accept the lowest or any Tender.

EDWARD SMITH,

Town Clerk.

Town Hall,  
Bexhill, Sussex.

## BOROUGH OF BROMLEY.

## BASTON ROAD IMPROVEMENT.

TENDERS are invited for the CONSTRUCTION of the ABOVE WORK, comprising 1,903 cu. yd. Excavation, Laying of 2,945 sq. yd. 9in. Reinforced Concrete Road Slab surfaced with 3½in. thick Hot Rolled Asphalt, 700 lin. yd. Granite Kerb, 1,573 sq. yd. A.S. Paving, 300 yd. 12in. dia. G.S. Sewer, 212 lin. yd. Dwarf 9in. Brick Boundary Wall, and ancillary works.

Drawings and Conditions of Contract may be inspected at the Office of the Borough Engineer, Municipal Buildings, Bromley.

Contractors wishing to tender should apply to the Borough Engineer for the Specification, Bills of Quantities and Form of Tender, which should be returned, in the envelope provided, to the undersigned not later than the 6th OCTOBER, 1960.

The Council does not bind itself to accept the lowest or any Tender.

LIONEL KAYE,

Town Clerk.

Municipal Buildings,  
Bromley, Kent.

## COLNE VALLEY URBAN DISTRICT COUNCIL.

## WEST SLAITHWAITE SEWER—CROWTREES BRANCH.

TENDERS are invited for the SUPPLY and LAYING of approx. £20yd. of 9in. dia. GLAZED STONEWARE SEWER.

Tender documents may be obtained on payment of a deposit of One Guinea, returnable on receipt of a bona-fide Tender not subsequently withdrawn, from the Office of the Council's Engineer and Surveyor, Town Hall, Cross Street, Slaithwaite.

Tenders to be endorsed "West Slaithwaite Sewer" and enclosed in a plain sealed envelope and returned to the Clerk of the Council not later than Noon on MONDAY, the 26th September, 1960.

J. W. LOMAS,

Clerk of the Council.

Town Hall,  
Slaithwaite.

## MILDENHALL RURAL DISTRICT COUNCIL.

## MOULTON AREA WATER SUPPLY.

TENDERS are invited for the LAYING of some 4,900yd. of 6in. dia. CAST-IRON WATER MAINS in the PARISH of KENNETT, in the County of Cambridgeshire, and the PARISHES of HERINGSWELL and FRECKENHAM, in the County of Suffolk.

Contractors wishing to tender should apply to the Council's Consulting Engineers, J. H. HAISTE AND PARTNERS, 44/46 Bridge Street, Peterborough, enclosing a deposit cheque value Three Guineas, made payable to the Mildenhall Rural District Council, such deposit to be refunded on receipt of a bona-fide Tender and the return of the documents.

Drawings may be inspected at either the Council Offices or the Consulting Engineer's Office. Tenders should be submitted to the undersigned not later than 12 Noon on MONDAY, 10th October, 1960.

The Council do not bind themselves to accept the lowest or any Tender.

F. DANNATT,

Clerk to the Council.

Council Offices,  
Mildenhall,  
Suffolk,  
6th September, 1960.

## CONTRACTS

## COUNTY BOROUGH OF BOURNEMOUTH.

## BOROUGH ENGINEER'S DEPARTMENT.

## ROAD WEIGHBRIDGE—GRAFTON ROAD DEPOT.

QUOTATIONS are invited for a ROAD WEIGHBRIDGE, capacity 30 tons, platform size 30ft. x 8ft. Quotations must reach the Borough Engineer, Town Clerk, Bournemouth, by FRIDAY, 30th September, 1960.

A. LINDSAY CLEGG,

Town Clerk.

## ROYAL BOROUGH OF NEW WINDSOR.

TENDERS are invited for REPAIRING and RESURFACING approx. 4,000 sq. yd. of WINKFIELD ROAD (Clewer Hill Road to Woodland Avenue) in BITUMINOUS MACADAM.

Specification, Bills of Quantities and Form of Tender can be obtained from Borough Engineer, Kipling Memorial Building, Alma Road, Windsor.

Tenders, in the official endorsed envelope provided, must reach me by Noon, MONDAY, 17th October, 1960.

The Council does not bind itself to accept the lowest or any Tender.

T. A. TOWNDROW,

Acting Town Clerk.

## BOROUGH OF CHESTERFIELD.

## LOUNDSLEY GREEN HOUSING ESTATE.

Applications are invited from civil engineering contractors to submit their names for consideration for inclusion in a list of contractors who will ultimately be invited to TENDER for a LARGE-SCALE ROAD AND SEWER CONTRACT on the ABOVE HOUSING ESTATE.

The area to be developed comprises approx. 125 acres, and includes approx. Five Miles of Roads and Dual Sewer Work, together with Structural Work in Reinforced Concrete.

The successful contractor will be required to commence work not later than March, 1961, and be capable of completing the Contract by the end of December, 1961.

A layout of the estate can be inspected by appointment between the hours of 9 a.m. and 5 p.m., Monday to Friday, at the Office of the Borough Engineer and Surveyor, Town Hall, Chesterfield, from whom further information can be obtained, and to whom the applications in writing shall be submitted not later than FRIDAY, 30th September, 1960.

RICHARD CLEGG,

Town Clerk.

1st September, 1960.

## BOROUGH OF WEMBLEY.

## WOODCOCK HILL IMPROVEMENT (DRAYCOTT AVENUE TO KENTON ROAD) AND SOIL AND SURFACE WATER SEWERS.

TENDERS, which must be received not later than Noon on 30th SEPTEMBER, 1960, are invited for the ABOVE WORK, which comprises Reconstruction of Carriageway in Reinforced Concrete (approx. 10,000 sq. yd.) and approx. 850yd. SEWERS (from 9in. to 27in. dia.).

Form of Tender, Bill of Quantities and Specification may be obtained from the BOROUGH ENGINEER AND SURVEYOR, Town Hall, Wembley, at whose Office Conditions of Contract and Drawings may be inspected.

## UCKFIELD RURAL DISTRICT COUNCIL.

## TENDERS—UCKFIELD CAR PARK.

TENDERS are invited on a fixed-price basis for the CONSTRUCTION of a CAR PARK and the RECONSTRUCTION of the ACCESS ROAD by the TOWN HALL CHAMBERS, Uckfield.

Contract documents may be obtained from the Engineer and Surveyor at the Council Offices on payment of a deposit of Two Guineas, returnable on receipt of a bona-fide Tender and the return of all documents supplied.

Tenders, in the envelopes provided, endorsed "Car Park, Uckfield," must be returned to the undersigned not later than Noon on FRIDAY, 23rd September, 1960.

D. C. DURRANT,

Clerk of the Council.

Council Offices,  
Beacon Road,  
Crowborough, Sussex.

## NORTH WITCHFORD RURAL DISTRICT COUNCIL.

## BENWICK SEWERAGE SCHEME.

## CONTRACTS NOS. 2 AND 3.

TENDERS are invited for the FOLLOWING: Contract No. 2.—The Supply and Erection at Benwick, Cambs., of Duplicate 100 g.p.m. Sludge Pumps, complete with Electric Motors, Starters and Accessories.

Contract No. 3.—The Supply and Erection at Benwick, Cambs., of Duplicate 20 g.p.m. and Duplicate 100 g.p.m. Ejectors, complete with Electric Motors, Starters and Accessories.

Manufacturers wishing to tender should apply for the documents and Drawings to the Council's Consulting Engineers, JOHN H. HAISTE AND PARTNERS, Belmont House, 20 Wood Lane, Headingley, Leeds, 6, enclosing a deposit cheque value Three Guineas in respect of each Contract, made payable to the North Witchford R.D.C., such deposit to be refunded upon receipt of a bona-fide Tender and the return of all the documents and Drawings.

Tenders are to be submitted to the undersigned not later than 12 Noon on the 8th OCTOBER, 1960. The Council do not bind themselves to accept the lowest or any Tender they may receive.

C. DOBB,

Clerk to the Council.

Grove House,  
Chatteris,  
Cambs.

## FYLDLE WATER BOARD.

## BROUGHTON BOREHOLE SCHEME.

TENDERS are invited from experienced well-boring contractors for the SINKING of 18in. dia. BOREHOLES to a depth of 50ft. at the FOLLOWING SITES, north of Preston, Lancs.:

Site G—Midge Hill.  
Site H—White Horse Lane.  
Site K—Myerscough Hall Lane.  
Site M—Catterall Lane.

Further particulars and Tender documents from ENGINEER TO THE BOARD, Setton Street, Blackpool. Tenders to be received not later than 14th OCTOBER, 1960.

## CONTRACTS

## COUNTY BOROUGH OF SOUTHPORT.

The Council invite TENDERS for the CONVERSION of 1 SCARBRICK STREET into TWO FLATS. The Specification and Drawings can be obtained from the Borough Architect and Town Planning Officer's Department, 99/105 Lord Street, on payment of Two Guineas, which sum will be refunded on receipt of a bona-fide Tender.

Tenders to be delivered to the undersigned by 14th OCTOBER.

R. EDGAR PERRINS,

Town Clerk.

## COUNTY BOROUGH OF NEWPORT.

## BETTS NEIGHBOURHOOD UNIT.

## ADVANCE PREPARATION WORKS—CONTRACT 2. APPROX. AREA 39 ACRES.

TENDERS are invited for the EXECUTION of the ABOVE WORKS, including Site Clearance, Construction of Stone Pitched Carriageway, Soil and Surface Water Sewers, and ancillary works.

General Conditions, Specification and Bill of Quantities may be obtained from the Office of the Borough Engineer, Civic Centre, Newport, Mon., on the production of the Borough Treasurer's receipt for £2 2s., which will be returned on receipt of a bona-fide Tender.

The Drawings may be inspected at either the Office of the Borough Engineer or at the Office of the Consulting Engineers, Messrs. W. S. Aikins and Partners, 6 Park Place, Cardiff.

Tenders must be enclosed in the envelope provided, and endorsed "Betts—Contract 2," and not bearing any name or mark indicating the sender, should reach the TOWN CLERK not later than 1 p.m. on WEDNESDAY, 28th September, 1960.

## BOROUGH OF MAIDSTONE.

## CONSTRUCTION OF CAR PARK—UPPER STONE STREET.

TENDERS are invited for the CONSTRUCTION of a CAR PARK in UPPER STONE STREET, approx. 1,100 sq. yd. in area, in HARDWARE and TARMACADAM.

Specification and Bills of Quantities may be obtained from the Drawings seen at the Office of the Borough Engineer, Palace Avenue, Maidstone.

Tenders, in plain sealed envelopes, endorsed "Construction of Car Park—Upper Stone Street," must reach the undersigned not later than 10 a.m. on MONDAY, 19th September, 1960.

The Corporation does not bind itself to accept the lowest or any Tender.

T. SCHOLES,

Town Clerk.

13 Tonbridge Road,  
Maidstone.

## BOROUGH OF GRANTHAM.

## POST AND STRAINED WIRE FENCING—EARLESFIELD ESTATE.

TENDERS are invited for SUPPLYING and ERECTING approx. 6,500yd. of CONCRETE POST AND STRAINED WIRE FENCING. Particulars from the Borough Engineer and Surveyor, Guildhall, Grantham. Closing date, 30th SEPTEMBER, 1960.

JOHN F. GUILLE,

Town Clerk.

Guildhall,  
Grantham.

## CITY OF ST. ALBANS.

## KING HARRY LANE IMPROVEMENT.

TENDERS are invited for the ABOVE WORKS, involving the Construction of 3,300 sq. yd. of Carriageway in Lean-mix Concrete, Gravel, Asphalt and Bitumen Macadam Surfacing, 1,620 sq. yd. of A.S. Paving, and 830 lin. yd. of Kerb, together with ancillary works.

Tender documents may be obtained from, and Plans inspected at, the Office of the City Engineer and Surveyor, 16 St. Peter's Street, St. Albans.

Tenders, in the envelope provided, and bearing no mark to indicate the sender, should be delivered to the undersigned not later than Noon on 29th SEPTEMBER.

B. V. ENTWISTLE,

Town Clerk.

38 St. Peter's Street,  
St. Albans, Herts.

## STOCKPORT CORPORATION.

## HILLCREST ROAD HOUSING ESTATE AND BRINNINGTON NEIGHBOURHOOD UNIT.

## CONTRACT NO. 15—FINAL CARPET.

TENDERS invited for FINAL CARPETING of a section of the ROADS comprising the HILLCREST ROAD AND BRINNINGTON HOUSING ESTATES. The area to be surfaced is approx. 20,000 sq. yd. Particulars from Room 76, Town Hall, Stockport. Tenders to be returned to the CHAIRMAN, Housing Committee, c/o Borough Surveyor, Town Hall, Stockport, by Noon, 30th SEPTEMBER, 1960.

## USK RIVER BOARD.

TENDERS are invited from contractors having suitable equipment and experience for the GROUTING of 2,400 sq. yd. of STONE PITCHING with BITUMINOUS ASPHALT GROUT on the sea wall at PETERSTONE WENTLOOGE, near Newport. Specifications and Forms of Tender may be obtained from the undersigned, and should be returned, in a plain sealed envelope, addressed to the Clerk to the Board, and endorsed "Tender—Bitumen," to be received not later than the 30th SEPTEMBER, 1960.

The Board do not bind themselves to accept the lowest or any Tender.

G. MCLEOD, M.I.C.E.,

Engineer.

The Croft,  
Caerleon, Mon.  
3rd September, 1960.

SUB-CONTRACTORS.—BRICKLAYERS, CARPENTERS and GROUND WORKERS WANTED for contracts Tunbridge Wells/Earlsfield area—Apply: PERRYMAN (BUILDING CONTRACTORS), LTD., 7 Castle Street, Tunbridge. Telephone 2251.

ADVERTISERS may be offered a DRAINAGE CONTRACT value in the region of £1m. Financial resources may not be available to execute the work within the specified time.—Firms interested in taking over should communicate with Box X.2666, "The Contract Journal."

For Contracts received too late for classification see page 1157



## APPOINTMENTS VACANT

## CENTRAL ELECTRICITY GENERATING BOARD

## MIDLANDS PROJECT GROUP.

## FOURTH ASSISTANT ENGINEER (CIVIL)—QUANTITIES.

APPLICATIONS are invited for the APPOINTMENT of FOURTH ASSISTANT ENGINEER (CIVIL)—QUANTITIES, in the Midlands Project Group at Bourneville.

Applicants should be competent Quantity Surveyors with experience in estimating, billing and measurement for power stations or other large industrial buildings and ancillary works—particular experience in site measurement would be an advantage.

Applicants should preferably hold an appropriate qualification.

The salary for the appointment will be within Scale 10 (£1,030-£1,325 per annum) of the National Joint Board Agreement.

Applications should be made on standard Form AE.6, available from the ADMINISTRATIVE OFFICER, Midlands Project Group, P.O. Box 314, Birmingham, 30, and should be returned to him not later than 16th SEPTEMBER, 1960.

Envelopes should be marked "Confidential," quoting Staff Vacancy No. MPG.65/60.

## STAFFORDSHIRE COUNTY COUNCIL.

## COUNTY SURVEYOR'S DEPARTMENT.

APPLICATIONS are invited for the FOLLOWING APPOINTMENTS, which are in connection with the supervision of Motorway Contract Works:

Senior Resident Engineers—Salary £1,550 p.a. Resident Engineers (Roads)—Salary £1,425 p.a. Assistant Resident Engineers (Bridges)—Salary £1,100-£1,200 p.a.

Assistant Resident Engineers (Roads)—Salary £1,100-£1,200 p.a.

Applicants must be qualified Engineers and have had the appropriate experience on the supervision of major constructional works.

Quantity Surveyors—Salary £1,425 p.a.

Applicants must be qualified and fully conversant with the standard method of measurement on civil engineering contracts, and have detailed knowledge with regard to payments made on interim and final measurements.

Site Laboratory Staff—Assistants—Salary £1,100 p.a.

Applicants must have the necessary technical and practical experience to deal with laboratory aspects of control; particularly the testing of soils and road materials.

Clerk of Works—Salary £900-£1,000 p.a.

Applicants must have had previous experience on large constructional works; preferably of a structural character or on major road schemes.

The County Council have approved a scale of overtime payments for week-end work, in addition to the standard scale.

The appointments are superannuable, and the County Council will, for a period of six months, grant a lodging allowance of 55s. per week and second-class return railway fare home every two months during that period to the successful candidate, if married and maintaining a home outside the geographical county. The Council will also consider granting financial assistance towards any expenses reasonably incurred in connection with the removal of a successful applicant's furniture and household goods.

Canvassing of members of the Council or any Committee of the Council, directly or indirectly, will be a disqualification.

Applications on the appropriate forms, which can be obtained from the County Surveyor, County Buildings, Stafford, should reach him not later than 14 days after the date of publication of this advertisement.

T. H. EVANS,

Clerk of the County Council.

County Buildings,  
Stafford.

## COUNTY BOROUGH OF DONCASTER.

## APPOINTMENT OF BUILDING INSPECTOR.

APPLICATIONS are invited for the POST of BUILDING INSPECTOR at a salary in accordance with Grade A.P.T. III (£880-£1,065 p.a.).

Candidates should have experience in similar capacities and should have a good knowledge of Building By-laws and Town Planning procedure. Preference will be given to applicants holding the Building Inspector's Certificate of the Institution of Municipal Engineers.

The appointment will be subject to the provisions of the Local Government Superannuation Acts and the passing of a medical examination.

Applications, stating age, education, qualifications, experience, past and present appointments, and giving the names of three referees, should be sent to the Borough Surveyor and Water Engineer, 2 Priory Place, Doncaster, to arrive not later than the 13th SEPTEMBER, 1960.

Canvassing will disqualify, and applicants must state whether or not they are related to any member or Senior Officer of the Council.

H. R. WORMALD,

Town Clerk.

1 Priory Place,  
Doncaster.

22nd August, 1960.

## DOWNHAM RURAL DISTRICT COUNCIL.

## APPOINTMENT OF RESIDENT ENGINEER.

APPLICATIONS are invited for the PERMANENT APPOINTMENT OF RESIDENT ENGINEER to supervise, under the direction of Consulting Engineers and the County's Surveyor, the construction of village sewerage schemes throughout the district.

The salary offered is £1,000 p.a., together with a travelling allowance on the essential users scale for 10-h.p. cars, and if required, housing accommodation will be made available. The appointment will be subject to the Local Government Superannuation Acts and the National Joint Council's Scheme of Conditions of Service.

Applicants should have had extensive experience in a similar capacity and must be prepared to accept supervisory duties on other capital works required.

Applications, stating age, qualifications, and experience, together with the names and addresses of two referees, should be received by the undersigned not later than MONDAY, 26th September, 1960.

A. B. HARRISON,

Clerk of the Council.

Council Offices,  
London Road,  
Downham Market,  
Norfolk.

## APPOINTMENTS VACANT

## CUMBERLAND COUNTY COUNCIL.

## HIGHWAYS AND BRIDGES DEPARTMENT.

APPLICATIONS are invited for the APPOINTMENT of an ASSISTANT ENGINEER in the Bridges Section of the Department at a salary within A.P.T. Grade III/Special (£880-£1,070 per annum). Minimum qualifications are that candidates should be graduate members of the Institution of Civil Engineers (or equivalent), or engineering graduates of a recognised British University and, in addition, should have had at least five years' experience (including the period spent on theoretical training). It is also necessary to have had some experience in the design and execution of bridge maintenance and improvement works in a County Surveyor's Department.

Further particulars and Forms of Application are obtainable from the County Surveyor and Bridgemaster, Citadel Chambers, Carlisle, to whom completed applications should be returned not later than FRIDAY, 23rd September, 1960.

G. N. C. SWIFT,  
Clerk of the County Council.

The Courts,  
Carlisle.

## COUNTY BOROUGH OF GRIMSBY.

## BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

## SENIOR ENGINEERING ASSISTANT.

APPLICATIONS are invited for the APPOINTMENT of a SENIOR ENGINEERING ASSISTANT on the permanent staff, Grade A.P.T. IV, commencing salary £1,065, rising to £1,220 per annum.

Experience in main drainage would be considered an advantage.

The appointment will be subject to the Conditions of Service of the National Joint Council, terminable by one month's notice on either side, and to the provisions of the Local Government Superannuation Acts. The successful candidate will be required to pass a medical examination.

Housing accommodation for a married person will be available if required.

Applications, stating age, qualifications, present and past appointments, and details of experience, together with the names and addresses of two referees, must be delivered to the undersigned not later than First MONDAY, the 19th September, 1960.

J. V. OLDFIELD, M.Inst.C.E.,

Borough Engineer and Surveyor.

Municipal Offices,  
Town Hall Square,  
Grimsby.

August, 1960.

## BOROUGH OF EALING.

APPOINTMENT for civil engineering work. Draughtsman, Grade IV (£630-£690), inclusive of London Weighting.

Full particulars and Application Forms obtainable from the BOROUGH SURVEYOR, Town Hall, Ealing, W.5.

Closing date: 19th SEPTEMBER, 1960.

E. J. COPE-BROWN,

Town Clerk.

## BOROUGH OF ENFIELD.

(Non-County Borough in the County of Middlesex. Pop. 109,700; Area 12,400 Acres.)

BOROUGH ENGINEER AND SURVEYOR'S DEPARTMENT.

## AMENDED ADVERTISEMENT.

## APPOINTMENT OF CLEANSING SUPERINTENDENT.

APPLICATIONS are invited for the PERMANENT APPOINTMENT OF CLEANSING SUPERINTENDENT at a salary in accordance with A.P.T. IV of the National Scheme of Conditions of Service (£1,065-£1,220 per annum) plus a London Weighting allowance of £45 per annum. The commencing salary will be fixed according to qualifications and experience.

Applicants must hold the Testimony of the Institute of Public Cleansing and have considerable experience in the supervision and organisation of the collection and disposal of refuse, and the operation and maintenance of the Council's transport.

An essential user car allowance is payable.

A five-day week is at present in operation. Particulars and Conditions of the Appointment, obtainable from the Borough Engineer and Surveyor, MR. H. D. PEAKE, M.Sc.(Eng.), M.Inst.P.C., 7 Little Park Gardens, Enfield, Middx., and applications are to be returned to the undersigned by MONDAY, 26th September, 1960.

CYRIL E. C. R. PLATTEN,

Town Clerk.

Public Offices,  
Gentlemen's Row,  
Enfield, Middx.

## HOLYHEAD URBAN DISTRICT COUNCIL.

## APPOINTMENT OF SURVEYOR.

APPLICATIONS are invited for the ABOVE APPOINTMENT at a salary in accordance with Chief Officers' Scale (population 10,000-15,000). Commencing salary dependent upon qualifications and experience. Usual conditions attaching to Local Government Service apply.

Applications, stating age, qualifications, appointments, and addresses of three referees, must be received by FRIDAY, 30th September, 1960.

Car allowance in accordance with the National Joint Council Scale will be paid.

Council house will be made available if needed.

D. LLOYD HUGHES,

Clerk of the Council.

Town Hall,  
Holyhead.

## MANCHESTER CORPORATION.

Vacancies for the FOLLOWING POSTS in the City Surveyor and Engineer's Department:

(a) Senior Assistant Engineer, Grade A.P.T. V (£1,220-£1,375).

(b) General Assistant Engineers, Special Scale (£785-£1,070).

A large variety of civil engineering works are in progress, or planned, giving opportunities for wide and interesting experience, and applicants for post (a) should have had experience in the design of bridges and structures.

Candidates should possess a University degree or be Corporate Members of the Institutions of Civil Engineers and/or Municipal Engineers.

Housing accommodation and removal expenses.

Applications, stating age, education, qualifications and experience, with the names of two referees, to the CITY SURVEYOR, Town Hall, Manchester, 2, by the 26th SEPTEMBER, 1960.

## APPOINTMENTS VACANT

## MINISTRY OF WORKS, KENYA.

## HYDROLOGISTS.

Qualifications: Candidates (not over 45) must have a University degree in Civil Engineering with, if possible, a post-graduate diploma in hydrology. Candidates with a degree in an applied science with some direct experience in applied hydrology can also be considered. In addition, candidates should have had not less than two years' relevant experience.

Duties will include measuring of river flows, assessment of flood discharges, rainfall run-off studies, and assessment of ground-water resources, their recharge and depletion.

Terms: On contract for one tour of 24-45 months in the first instance, with salary in scale £1,194 to £1,863 p.a. and gratuity on the satisfactory completion of engagement.

Free passages. Generous leave. Free medical attention.

Apply DIRECTOR OF RECRUITMENT, Colonial Office, London, S.W.1. Give full name and age, and brief details of qualifications and experience. Quote BCD112/7/01 D14.

## COUNTY BOROUGH OF ROTHERHAM.

## APPOINTMENT OF SENIOR ENGINEERING ASSISTANT—GRADE IV (£1,065-£1,220).

APPLICATIONS are invited for an APPOINTMENT of SENIOR ENGINEERING ASSISTANT in the office of E. J. MANSON, B.Eng., A.M.I.C.E., M.I.Mun.E. Borough and Water Engineer, on Grade IV of the A.P.T. Division of Scales, commencing at a salary of £1,065 per annum and rising by annual increments to a maximum of £1,220 per annum.

Applicants must be Corporate Members of the Institution of Civil Engineers and/or of the Institution of Municipal Engineers and must have had a good general experience of the work of a Municipal Engineer's Office.

The person appointed will be required to pass a medical examination and to contribute to the superannuation scheme.

Housing accommodation can be provided if necessary. Removal expenses up to a maximum of £25 will be paid by the Council to the person appointed, if married.

Applications, endorsed "Senior Engineering Assistant," stating age, qualifications, and details of experience, together with the names of two referees, should be received by me not later than FRIDAY, 23rd September.

JOHN S. WALL,

Town Clerk.

Municipal Offices,  
Howard Street,  
Rotherham.

September, 1960.

## URBAN DISTRICT COUNCIL OF ABERDARE.

## CLERK OF WORKS—HOUSING.

APPLICATIONS are invited for the NON-SUPERANNUABLE POST OF CLERK OF WORKS at the Maeswyn Housing Site, Cwm-dare. On completion of the work, the Clerk of Works may be transferred to another housing site being developed by the Council.

Applicants must be experienced in (1) the supervision of building and laying-out of sites for housing sites; and (2) the supervision of the construction of houses (which is now about to begin).

The Scheme of Conditions of Service for the Miscellaneous Classes of Officers, with the exception of Paragraph 4 (Overtime), will apply to the post, but the salary will be £800 per annum. A reasonable travelling allowance will be paid to a successful applicant living outside the Urban District.

The appointment will be for the duration of such housing schemes as are assigned to the Clerk of Works supervision, but will nevertheless be subject to one month's notice on either side.

Applications, giving full details of qualifications and experience, with copies of two recent testimonials, must reach me before Noon on THURSDAY, 29th September, 1960.

D. G. JAMES,

Clerk of the Council.

Town Hall,  
Aberdare.

29th August, 1960.

## BUCKS. WATER BOARD.

## MID-BUCKS. SCHEME.

## ASSISTANT RESIDENT ENGINEER.

The Board invite APPLICATIONS for the ABOVE TEMPORARY APPOINTMENT at a salary of up to £1,000, according to experience. A car allowance will also be payable.

The estimated value of the work to be supervised is £600,000, and the initial contract will involve the laying of over 10 miles of 24in. dia. main.

Subsequent contracts—when approved—are likely to involve the laying of some Seven Miles of 18in. dia. main and the construction of a reinforced concrete reservoir. The Resident Staff will act under the direction of the Board's Consulting Engineers, MESSRS. A. H. S. WATERS AND PARTNERS.

Applications, stating age, experience, professional qualifications, and the date when the applicant would be able to commence duties, accompanied by the names of three referees, must reach A. H. S. WATERS AND PARTNERS, of 25 Temple Row, Birmingham, 2, not later than the 12th SEPTEMBER.

H. A. FOLEY,

Clerk to the Board.

7 Temple Square,  
Aylesbury.

## BUCKS. WATER BOARD.

## MID-BUCKS. SCHEME.

## PIPELINE INSPECTORS.

The Board invite APPLICATIONS for TEMPORARY APPOINTMENT of a number of PIPELINE INSPECTORS at a wage of up to £16 per week, according to experience.

The initial contract is for the construction of over 10 miles of 24in. dia. water main. Subsequent contracts—when approved—will involve the laying of some seven miles of 18in. dia. main.

Applicants should have had experience on constructional works of a similar nature.

Applications, stating age, experience, and the date when the applicant would be able to commence duties, accompanied by the names of three referees, must reach the Consulting Engineers for the scheme, A. H. S. WATERS AND PARTNERS, of 25 Temple Row, Birmingham, 2, not later than the 12th SEPTEMBER.

H. A. FOLEY,

Clerk to the Board.

7 Temple Square,  
Aylesbury.



## APPOINTMENTS VACANT

COUNTY OF NORTHUMBERLAND.  
COUNTY SURVEYOR'S DEPARTMENT.

## APPOINTMENT OF SENIOR ENGINEERING ASSISTANT, A.P.T. GRADE IV (£1,065-£1,200).

APPLICATIONS are invited from Chartered Civil or Municipal Engineers for the ABOVE APPOINTMENT on the ESTABLISHED STAFF of the Department. The person appointed will be employed in a section of the Department which deals with the highway aspect of the control of development, road location and road improvement lines, and a knowledge of the operation of the Town Planning Acts would be an advantage.

The commencing salary within the range of £1,065 to £1,200 will be dependent on qualifications and experience. The appointment will be subject to the Scheme of Conditions of Service of the National Joint Council, the Superannuation Acts, and to a satisfactory medical examination.

Applications, giving details of qualifications, experience, present and previous appointments, with dates and salaries, and also the names and addresses of two referees, must reach the undersigned by First Post on MONDAY, 26th September, 1960.

G. F. GARNETT,  
County Surveyor.

County Surveyor's Office,  
Phoenix House,  
Queen Street,  
Newcastle upon Tyne, 1.

## COUNTY BOROUGH OF EAST HAM.

SENIOR ASSISTANT ENGINEER (GENERAL)—  
GRADE III (£880-£1,065).

London Weighting is paid in addition. Salary in excess of the minimum may be paid according to qualifications and experience.

A subsistence allowance may be granted over a reasonable period to the person appointed if unable to obtain suitable housing accommodation, necessitating the maintenance of two homes.

Further details and Application Forms, returnable by 16th SEPTEMBER, 1960, from the TOWN CLERK, Town Hall, E.G.

## COUNTY BOROUGH OF EAST HAM.

ENGINEERING ASSISTANTS, A.P.T. I—  
SALARY UP TO £805 PER ANNUM.

Subsistence allowances may be granted over a reasonable period to the persons appointed if unable to obtain suitable housing accommodation, necessitating the maintenance of two homes.

Further details and Application Forms, returnable by 16th SEPTEMBER, 1960, from the TOWN CLERK, Town Hall, East Ham, E.G.

## COUNTY BOROUGH OF WEST BROMWICH.

## APPOINTMENT OF ROAD FOREMAN.

APPLICATIONS are invited for the ABOVE APPOINTMENT. Salary will be Misc. Grade VI (£715 x 20 to £775 per annum).

This appointment will rank next in seniority to the Highways Superintendent. For the information of candidates, the post of Highway Superintendent, due to retirement, will become vacant in approx. two years' time.

The appointment will be subject to the National Joint Council conditions of Service, to a medical examination, and to one month's notice on either side.

Applications, giving full particulars of experience, age, qualifications, etc., together with the names and addresses of two referees, should be sent to the undersigned by 21st SEPTEMBER, 1960.

W. H. GREENWOOD,  
Borough Engineer and Surveyor.

Town Hall,  
West Bromwich.

## CITY OF SHEFFIELD.

## APPOINTMENT OF DEPUTY CITY ENGINEER AND SURVEYOR AND DEPUTY TOWN PLANNING OFFICER.

APPLICATIONS are invited for the WHOLE-TIME APPOINTMENT OF DEPUTY CITY ENGINEER AND SURVEYOR AND DEPUTY TOWN PLANNING OFFICER at a salary of £2,133 6s. 8d. per annum, rising by annual increments of £90 to a maximum of £2,403 6s. 8d. per annum (i.e., two-thirds of salary scale of Chief Engineer).

Applicants must have had extensive experience, in a responsible capacity, of municipal engineering and town planning, and must hold appropriate professional qualifications.

The appointment will be subject to a medical examination, superannuation, three months' notice on either side, and the usual Conditions of Service.

Applications, which must be made on the official form obtainable from me upon request, must reach me on or before MONDAY, the 26th September, 1960.

Canvassing, whether direct or indirect, is prohibited and will be a disqualification.

JOHN HEYS,  
Town Clerk.

Town Hall,  
Sheffield.

## THE CHESHIRE RIVER BOARD.

## BIRKET AND FENDER IMPROVEMENT SCHEME.

## ASSISTANT RESIDENT ENGINEER.

APPLICATIONS are invited for the TEMPORARY APPOINTMENT OF AN ASSISTANT RESIDENT ENGINEER on the above scheme. The works include the construction of a flood relief pumping station in a reclaimed portion of the Morpeth Branch Dock, Birkenhead; diversionary works to the Great Culvert; a discharge culvert constructed in tunnel in the dock wall, and the erection of pumping plant.

The Assistant Resident Engineer will be required to supervise underwater work carried out by divers, and will be required to pass a medical examination for diving up to a maximum depth in water of 40ft. Salary £1,200 per annum for the duration of the appointment, which is expected to be about 18 months, commencing December, 1960.

Conditions of Service as Parts 2, 4 and 5 only of the Scheme of Conditions of Service issued by the National Joint Council for Local Authorities, Administrative, Professional, Technical and Clerical Staffs.

Applications, endorsed "Assistant Resident Engineer," giving full particulars of age, qualifications, experience, and also the names of two persons to whom reference can be made, should reach the undersigned not later than 3rd OCTOBER, 1960.

SANDFORD FAWCETT AND PARTNERS,  
Consulting Civil Engineers.

53 Victoria Street,  
Westminster, S.W.1.

## APPOINTMENTS VACANT

STIRLING COUNTY COUNCIL.  
ROADS DEPARTMENT.  
CLERK OF WORKS.

APPLICATIONS are invited for the TEMPORARY APPOINTMENT OF CLERK OF WORKS on the construction of a reinforced concrete bridge at Lennoxton.

The salary offered is £750 per annum, and no overtime, subsistence or travelling expenses will be payable.

The duration of the Contract will be approx. nine months.

Applications in writing, giving age and experience, together with the names of two referees, should be sent to the County Road Surveyor, Causewayhead School, By Stirling, on or before WEDNESDAY, 14th September, 1960.

JAMES D. KENNEDY,  
County Clerk.

County Offices,  
Viewforth,  
Stirling.  
30th August, 1960.

## BRECONSHIRE COUNTY COUNCIL.

## APPOINTMENT OF ENGINEERING ASSISTANT.

APPLICATIONS are invited for the APPOINTMENT OF ENGINEERING ASSISTANT, Special Grade (£785-£1,070 p.a.). Commencing salary in accordance with qualifications and experience.

Applicants should be experienced in the preparation of details of road and bridge improvement schemes, and preference will be given to Corporate Members of the Institution of Civil Engineers or the Institution of Municipal Engineers.

The appointment will be subject to the National Scheme of Conditions of Service, to the Local Government Superannuation Acts, to the passing of a medical examination, and will be terminable by one month's notice.

Particulars and forms of application from County Surveyor, Watton Offices, Brecon. Applications to be delivered to the undersigned not later than MONDAY, 3rd October, 1960.

C. M. S. WELLS,  
Clerk of the County Council.

County Hall,  
Brecon.

## BOROUGH OF SHREWSBURY.

## WATER DEPARTMENT.

## ASSISTANT ENGINEER.

APPLICATIONS are invited for the ABOVE ESTABLISHED APPOINTMENT within Salary A.P.T. Grade II (£765-£880), according to qualifications and experience.

Housing accommodation will be provided if required, and removal expenses paid.

The appointment is subject to the N.J.C. Conditions of Service, the Local Government Superannuation Acts, a satisfactory medical examination, and termination by one month's notice on either side.

Applications, stating age, qualifications and details of experience, together with the names of three persons to whom reference may be made, should be submitted to the Water Engineer and Manager, Water Department, Shelton, Shrewsbury, so as to be received not later than 16th SEPTEMBER, 1960.

S. R. H. LOXTON,  
Town Clerk.

Guildhall,  
Shrewsbury.

## CITY OF GLOUCESTER.

## APPOINTMENT OF RESIDENT ENGINEER.

APPLICATIONS are invited for the APPOINTMENT OF RESIDENT ENGINEER to supervise the construction of the sewage treatment works within the city boundary.

The works are to be carried out by contract under the direction of the Corporation's Consulting Engineers, MESSRS. JOHN TAYLOR AND SONS, Artillery House, Artillery Row, Westminster, S.W.1. The post is temporary, for superannuation purposes, 2½ years, terminable at one month's notice by either side.

Candidates should have received a professional engineering training and should have a sound knowledge of reinforced concrete construction.

The salary will be £1,500 per annum. The successful candidate will be required to undergo a medical examination for superannuation purposes.

The Scheme of Conditions of Service for Local Authorities' Administrative, Professional, Technical and Clerical Services will apply.

The Council may be able to assist with housing accommodation if required.

Applications, endorsed "Resident Engineer," stating personal particulars of candidate, professional training and qualifications, previous experience, with dates, and giving the names and addresses of two persons to whom reference can be made, must be delivered to the undersigned by the 26th SEPTEMBER, 1960.

A. G. W. BOGGO,  
Town Clerk.

Guildhall,  
Gloucester.

## THE NATIONAL HOUSE-BUILDERS

## REGISTRATION COUNCIL.

A BUILDING INSPECTOR is required by the National House-Builders Registration Council to inspect houses being built in each of the following areas:

- (1) Tyneside, Co. Durham and Yorkshire (N.R.).
- (2) Yorkshire (E.R. and W.R.), Lincs., and Notts. (part of).
- (3) East Anglia.
- (4) West County (Falmouth, Exeter, I. of W., and Taunton).
- (5) Bucks., Berks., Oxon, Gloucester (part of).

Candidates should have had experience in practical building construction, including supervision, and preference will be given to those holding a recognised Diploma.

Commencing salary not less than £700 per annum, with provision for annual increments. There are also opportunities for promotion.

Applications, stating present and past employment, age, qualifications, etc. (marked "Building Inspector"), should be sent within 14 days of this advertisement to CHIEF TECHNICAL OFFICER, N.H.B.C., 58 Portland Place, London, W.1.

AGENT—A Senior Agent REQUIRED, with considerable experience in railway engineering. A knowledge of other civil engineering works would be advantageous but not essential. Must hold a current driving licence and be noted.—Apply in confidence, giving details of qualifications and experience, to Contracts Manager, EAGRE CONSTRUCTION CO., LTD., East Common Lane, Scunthorpe, Lincs.

## APPOINTMENTS VACANT

COUNTY BOROUGH OF BOURNEMOUTH.  
BOROUGH ENGINEER'S DEPARTMENT.

## APPOINTMENT OF RESIDENT ENGINEER.

APPLICATIONS are invited for the ABOVE POST, in the first instance on the £500,000 scheme for the construction of Holdenhurst Sewage Disposal Works. Salary A.P.T. IV (£1,065-£1,220). Starting salary above minimum considered for suitable experience.

No application forms will be issued, but conditions of service and outline of above contract can be obtained from Borough Engineer.

Applications, giving names of two referees, and stating age, qualifications and details of experience, to reach Borough Engineer, Town Hall, Bournemouth, by 1st OCTOBER, 1960.

A. LINDSAY CLEGG,  
Town Clerk.

BUYER REQUIRED for building and civil engineering contractors, Birmingham. Must be able to take-off and be fully conversant with all trades. Permanent position for right applicant. £850 per year.—Write Box V.2621, "The Contract Journal."

SENIOR ACCOUNTS CLERK for building and civil engineering contractors, Birmingham. Must be competent bookkeeper. Good wages and permanent position for right man.—Write Box V.2622, "The Contract Journal."

YOUNG ENGINEER WANTED for setting-out and control of road and sewer contracts in Glamorgan. Six months' contract; possible permanency.—D. BENNETT, LTD., Wallington, Fareham, Hampshire.

## PRECISE SURVEYS, LTD.

Invite applications from SENIOR LAND AND ENGINEERING SURVEYORS to fill permanent posts at home and overseas in near future. Excellent prospects; hard work; long hours; good remuneration.

## PRECISE SURVEYS, LIMITED.

East Stour, Dorset.

## JOHN LAING AND SON, LTD., REQUIRE

ASSISTANT BUYERS at their head and regional offices. Applicants should have had some experience of buying or as builders' assistants, and must be able to take-off quantities. Applications welcome from men studying for H.N.C., L.I.O.B. or A.I.Q.S., or those who have already qualified. Good prospects within the organisation, including pension scheme and other progressive benefits. Applications, in writing, to Personnel Manager (A.B.17), John Laing and Son, Ltd., London, N.W.7.

CIVIL ENGINEERS. — SUB-AGENTS, SECTION with previous contract experience urgently REQUIRED for civil engineering and building work in Scotland. Good prospects for Engineers with initiative and drive. Pension schemes; life assurance. Apply in writing, stating age, previous experience, qualifications, and salary required, to ROBERT M. DOUGLAS (CONTRACTORS), LTD., 395 George Road, Erdington, Birmingham, 25.

JUNIOR CIVIL ENGINEER for site work in the J. Mersey area. Enthusiasm, drive and initiative more important than qualifications.—Write in first instance, with full details, in strict confidence, to D. S. O'BRIEN AND CO., Olive Mount, Birkenhead.

ESTIMATOR REQUIRED for civil engineering contractors' London office. Applicants should have been previously engaged in the preparation of tenders for earthworks, foundations, r.c. and marine construction, and a sound site experience of such works would be to advantage. The position is progressive and covered by a superannuation scheme. Applications invited in confidence (existing staff advised of vacancy). — Write Box V.2608, "The Contract Journal."

SITE ENGINEER REQUIRED for setting-out and building and civil engineering works. Must be prepared to travel within the U.K.—Apply in confidence, giving details of qualifications and experience, etc., to Contracts Manager, EAGRE CONSTRUCTION CO., LTD., East Common Lane, Scunthorpe, Lincs.

JUNIOR ESTIMATOR REQUIRED in civil engineering contractors' office in N.W. London. Applicants should have a background of quantity surveying and some site experience, or similar experience in an estimator's office. Progressive, pensionable position.—Apply to RUDDOCK AND MEIGHAN, LTD., Burford House, Harrow View, Wealdstone, Middlesex.

CLERK REQUIRED for surfacing department office at head office in Dronfield. Applicants should have had experience in surfacing contracting industry, particularly in regard to planning of work in connection with road, footpath and playground surfacing. A knowledge of estimating an advantage. Pensions scheme in operation. Interesting appointment for right man. Apply in confidence, stating age, experience, and present salary, to the Secretary, WM. PRESTWICH AND SONS, LTD., Dronfield, near Sheffield.

## SITE MEASURING AND COSTING SURVEYORS

REQUIRED for bridges contract near Grantham. Opportunities to travel later. Staff appointment; pension fund, etc. Age 21 to 30. Previous site experience essential, and knowledge of standard methods of measurement important. There is an additional vacancy on a contract near Stevenage.—Apply in confidence, quoting Ref. SC.85, to:

Contract Labour Department,  
SIMON-CARVES, LIMITED,  
Cheadle Heath, Stockport, Cheshire.

CIVIL ENGINEER, experienced in marine work. REQUIRED for long-term employment on Humber-side. — Application to Box V.2530, "The Contract Journal."

QUANTITY SURVEYORS REQUIRED for building and civil engineering work in Scotland. Excellent prospects for men of initiative and drive. Pension scheme; life assurance.—Apply in writing, stating age, education, qualifications, experience, and salary required, to ROBERT M. DOUGLAS (CONTRACTORS), LTD., 395 George Road, Erdington, Birmingham, 25.

SITE CIVIL ENGINEER REQUIRED by contractors, for setting-out and site records, Scarborough area. Good salary, bonus and subsistence to suitable applicant. Excellent prospects for keen young man with ambition. — Write, giving details of qualifications and experience, to Box V.2613, "The Contract Journal."

## APPOINTMENTS VACANT

**BOOKKEEPER/ACCOUNTANT** REQUIRED to take charge of building and civil engineering accounts department. N.B. Supervision of small staff; preparation of monthly trading accounts and final accounts. Pension scheme. — Apply to **CAWOOD, WHARTON AND CO., LTD.**, 585 Woolwich Road, S.E.7.

**CIVIL ENGINEERING ESTIMATOR**, aged 25-30, with adequate training and some experience of tendering for general civil works, is REQUIRED by old-established contractors with offices in North London. This is a permanent appointment with good prospects, for a suitable applicant. Staff pension scheme in operation. — Write, giving age, salary required, and fullest details of experience, to Box V.2604, "The Contract Journal."

## REINFORCED CONCRETE DESIGNERS and DRAUGHTSMEN

With knowledge of building construction, REQUIRED by precast concrete specialists at their head office near Guildford. Varied work with good prospects, superannuation etc. Salary by arrangement according to qualifications and experience. — Apply to:

The Senior Structural Engineer,  
**MARLEY CONCRETE, LTD.**,  
Peasmarsh, Guildford, Surrey.

**ENGINEER-ESTIMATOR** REQUIRED for small but expanding civil engineering contractors in South-East. This appointment would be responsible only to the contracts manager, and is an excellent opportunity for a young, live man. Experience desirable in road and sewer construction, and in sewerage disposal, etc. — Write, stating age, training and experience, to Box V.2618, "The Contract Journal."

**INSPECTORS OF WORKS** REQUIRED to supervise civil engineering construction work overseas. Experience in reinforced concrete and general civil engineering work. Applications required now. — Write, stating age and experience, to Box V.2616, "The Contract Journal."

**ROAD CONTRACTORS** REQUIRE experienced ESTIMATOR-AGENT to establish and run a section to deal with small general roadworks in Metropolitan area. Permanent, pensionable position. Car provided. Full details in confidence. — Write Box V.2617, "The Contract Journal."

**CIVIL ENGINEERING** contractors on South Coast are expanding and REQUIRE the services of an ESTIMATOR for road and sewer works. He must be fully experienced in taking-off and pricing from drawings and specifications, preparing interim certificates and final accounts. He must have knowledge of the capabilities and output of modern earth-moving equipment, etc. The position, which is pensionable, would be a progressive one with a salary range of £900-£1,500 per annum. — Write, stating age and experience, to Box V.2611, "The Contract Journal."

**QUANTITY SURVEYOR**—ASSISTANT QUANTITY SURVEYOR REQUIRED by major firm of building and civil engineering contractors, initially for extensive hydro-electric project near Inverness. This appointment will be permanent, with good salary and conditions, and entry into superannuation scheme after 18 months' service. — Applications, giving details of training and experience, will be treated in strict confidence and should be addressed to **THE MITCHELL CONSTRUCTION CO., LTD.**, Wharf Works, Peterborough, Northants.

**SITE QUANTITY SURVEYORS** REQUIRED for building and civil engineering contracts in the North-West and Manchester areas. Local men preferred, but overseas experience in site measurement and be able to prepare interim and final certificates under R.I.B.A. and I.C.E. conditions. These are staff appointments and pensionable. Good salaries in accordance with ability and experience. Allowances paid. — Apply to Contract Labour Department, **SIMON-CARVES, LTD.**, Cheadle Heath, Stockport, Cheshire, quoting Ref. SC.95.

## THE LAING HOUSING CO., LTD.

Have vacancies for AGENTS and GENERAL FOREMEN for large private housing development schemes throughout England. Applicants should be capable of managing large projects, including roads and sewers. These vacancies offer excellent prospects of rapid development in an expanding organisation. Posts are permanent and pensionable. — Apply, stating age, experience and qualifications, to:

Personnel Manager (LH5),  
**JOHN LAING AND SON (HOLDINGS), LTD.**,  
Page Street, London, N.W.7.

**TECHNICAL REPRESENTATIVE** REQUIRED in connection with hire of large mobile cranes and associated services. Based on Rotherham, to work North Midlands area. Modern car provided. Heavy mechanical engineering experience essential. Some drawing office work and a successful sales record in similar field desirable. — Write Box V.2612, "The Contract Journal."

**EXPERIENCED SITE ENGINEERS/SURVEYORS** REQUIRED by civil engineering contractors based in Hull. Fully experienced setting-out, measuring, valuations and final accounts, and able to work with minimum supervision. Pension and life assurance scheme in operation. Excellent prospects for right man. — Write, giving full details, in strictest confidence, to Box V.2575, "The Contract Journal."

**REQUIRED** for Motorway Project. — Remunerative posts under contract. — REQUIRED for firm of civil engineering contractors. All posts offer the opportunity for advancement and an interesting career: PROJECT MANAGER, SENIOR AGENTS, SENIOR SITE ENGINEERS, GENERAL FOREMEN. Applicants must have had previous experience of motorway construction and be able to prove successful background. — Write, with fullest details, outlining previous experience, qualifications (if any), and salary required, to Box V.2569, "The Contract Journal."

**OVERALLS and Textiles**—CONTRACT CLERKS WANTED. Conversant with forms of tender and sampling. Experience of hospitals, L.A.s and industry an advantage. In reply, state age, experience and present remuneration. — **THE WESTBROOK LINEN CO., LTD.**, 59 Holloway Road, London, N.7.

**SENIOR ESTIMATOR** REQUIRED. — Applications are invited from men who are fully experienced in estimating for all types of civil engineering and building works. Good salary, pension scheme, car provided. — Apply in writing, giving full particulars of experience, previous employers, salary expected, and when free to commence, to Managing Director, **CURRALL, LEWIS AND MARTIN, LTD.**, 11 Booth Street, Birmingham, 21.

## APPOINTMENTS VACANT

**MOWLEM** REQUIRE a DRAUGHTSMAN/DESIGNER at their head office. The duties will comprise the design and detailing of mechanical and structural work, mainly in connection with civil engineering construction plant. — Applicants should have technical training to H.N.C. (Mechanical) standard, and should write, giving age, experience, and salary required, to **JOHN MOWLEM AND CO., LTD.**, Plant Department, 91 Ebury Bridge Road, S.W.1.

**GRAYSTON PLANT AND ENGINEERING CO., LTD.** REQUIRE the immediate services of a young likely OUTSIDE REPRESENTATIVE for their Lancashire branch at Haydock Lane, Haydock, St. Helens. Car supplied. Excellent prospects. — Apply Mr. W. Haigh, General Manager, Ashton-in-Makerfield 7631.

**GRAYSTON PLANT AND ENGINEERING CO., LTD.**, REQUIRE the immediate services of a young experienced PLANT HIRE MANAGER for their Lancashire office at Haydock Lane, Haydock, St. Helens. Excellent prospects. — Apply Mr. W. Haigh, General Manager, Ashton-in-Makerfield 7631.

**OLD-ESTABLISHED** company invite applications from CIVIL ENGINEER/AGENTS, aged about 30, for appointment to the staff of an expanding organisation in South Lancashire. The successful applicants must be experienced in roads, drainage, sewage disposal, reinforced concrete works, etc., and have previously held a similar position with a reputable contractor. A working knowledge of soil mechanics would be advantageous. Positions are to keen, ambitious men willing to accept responsibility. — Write in confidence to Box V.2620, "The Contract Journal."

**SITE ENGINEER** REQUIRED for important blast cleaning and protective coating contract in West London. Salary scale £1,200-£1,500 p.a. plus allowances, transport, etc. Duration of contract 18 months. Continued employment is available to suitable applicants. — Apply to Managing Director, **COATING CONTRACTORS, LTD.**, Castle Mills, Buckingham.

## CIVIL ENGINEERS

REQUIRED for technical sales, planning and supervision. Applicants, preferably aged 25 to 35, must be of good address, well-educated and have had site and drawing office experience. Positions call for a sound civil engineering background rather than highest technical qualifications. A working knowledge of soil mechanics would be advantageous. Positions are progressive, permanent and pensionable. Successful applicants may be based in Derby or London. — Reply, with full particulars, to:

F.C. CONSTRUCTION CO., LTD.,  
City Road, Derby.

**SITE AGENT**, preferably qualified, REQUIRED for bridge reconstruction in West London, with permanent salary suitable applicant. — Write, giving details of qualifications, experience, and salary required, to Box V.2591, "The Contract Journal."

**WORKS MANAGER** for civil engineering and industrial building work in South of England. Applicants should be capable of site control of work up to £1m. Pension and bonus schemes in operation. Write full particulars to Box V.2593, "The Contract Journal."

**SITE ENGINEERS** REQUIRED for sewage disposal contracts in the South of England. Superannuation scheme in operation. — Write, giving details of age, qualifications and experience, to the General Manager, **HENRY OSMAN AND CO., LTD.**, Winchester Road, Southampton.

**QUANTITY SURVEYOR** of high standard and good educational background REQUIRED by progressive firm of contractors who specialise in earthmoving and civil engineering works. Applicants must have sound knowledge and experience in this capacity and be able to estimate with accuracy. Excellent opportunities and permanent position for a Surveyor with initiative who will accept responsibility. Local candidates preferred. — Apply in confidence, stating age, qualifications and salary required, to Managing Director, **GEORGE HIGGINSON AND SON, LTD.**, Bickenhill Lane, Marston Green, Birmingham.

**PLANT MANAGER** REQUIRED by progressive firm of plant hirers and contractors. Applicants must have sound knowledge and experience in the control of all types of contractors' plant, workshop organisation, repairs and stores. The position offered is permanent, with excellent opportunities for a person with initiative who will accept responsibility and hard work. Local candidates preferred. — Apply in confidence, stating age, qualifications, and salary required, to Managing Director, **GEORGE HIGGINSON AND SON, LTD.**, Bickenhill Lane, Marston Green, Birmingham.

**PLANT FITTER** REQUIRED who is experienced in all types of contractors' plant and equipment, diesel and petrol, welding, etc. Must be capable of carrying out field maintenance on own initiative. Apply, stating age, and salary required, to Secretary, **GEORGE HIGGINSON AND SON, LTD.**, Bickenhill Lane, Marston Green, Birmingham.

**TOP-LINE PLANT MANAGER** REQUIRED. Must be conversant with international selling, no dead-beats. Fantastic opportunity for live-wire. — Write full details to Box V.2599, "The Contract Journal."

## CUBITTS

**SITE ENGINEERS**, North-West. Graduates or other technically qualified, or partially qualified, young men with setting out experience REQUIRED for interesting projects in north-west. Opportunity to broaden experience and to assist in general site duties. Good conditions and benefits. — Write full details of age, education and career to date, to:

The Personnel Officer,  
**HOLLAND & HANNEN AND CUBITTS**  
(NORTH-WEST), LTD.,  
Building and Civil Engineering Contractors,  
New Chester Road, Bromborough, Wirral, Cheshire.

**ASSISTANT CIVIL ENGINEERING ESTIMATOR** REQUIRED for a national company. This is an excellent opportunity for a capable man with experience to advance in an expanding organisation. Write, giving full details, to **JAMES MILLER AND PARTNERS, LTD.**, Pump Lane, Hayes, Middlesex.

**COST AND BONUS SURVEYOR** REQUIRED to develop a new department from scratch. Applicants must be experienced in cost estimation and drive in order to develop the department to cover all aspects of building and civil engineering. Superannuation scheme. — Write, stating age, experience, salary required, to **McLAUCHLIN (KNOTTINGLEY), LTD.**, Hill Top, Knottingley, Yorkshire.

## APPOINTMENTS VACANT

**SENIOR EXECUTIVE** REQUIRED for contractors' mechanical plant company in North London. Must have first-class knowledge of the trade, be competent to give technical advice to customers when necessary, and be able to negotiate at top level for sales and hire of contractors' plant and machinery. Knowledge of modern methods of activity into existing business would be an advantage. Applications will be treated in the strictest confidence. Write in first instance, giving details of past experience, age, etc., and salary expected, to Box V.2639, "The Contract Journal."

## LONDON FERRO-CONCRETE CO., LTD.

**QUANTITY SURVEYOR**—Due to rapid expansion, a vacancy now occurs for an experienced Quantity Surveyor with at least five years' experience with contractors. A good salary will be offered to the right applicant, plus three weeks' annual holiday, and inclusion in the company's pension scheme. — Applications should be sent to:

The Chief Surveyor,  
**LONDON FERRO-CONCRETE CO., LTD.**,  
Maxted Close, Hemel Hempstead, Herts.

**CONSULTING** civil engineers have vacancies for **ENGINEERING ASSISTANTS** to assist in the design of various public health engineering works. The positions offer a wide opportunity of obtaining experience in various aspects of the profession, and after a qualifying period Assistants are entitled to join the non-contributory pension scheme operated by the firm. — Applicants should write to **JOHN TAYLOR AND SONS, Artillery House, Artillery Row, London, S.W.1**, giving details of their qualifications and experience.

**SOUTH-WEST ENGLAND**. — National contractors invite applications from experienced men for the following positions for their local office: **SUPERVISORS**—preferably engineer-trained, with good experience in the control of a number of medium- and large-sized reinforced concrete contracts essential, together with knowledge of modern methods of construction and planning. **GENERAL FOREMEN**—preferably carpenter-trained and with experience in charge of reinforced concrete construction. **SENIOR PLANNING ENGINEERS**—for pre-estimate planning, detailed programming of structural and building contracts, including co-ordination of site planning engineers; all trades, with specialised knowledge of reinforced concrete work. The appointments will be to the permanent staff, and offer interesting and varied work, with excellent opportunities for increased responsibility and advancement to more senior positions, with appropriate remuneration. — Please send full details, in confidence, to Box No. SW.3755, A.K. Advertising, 212a Shaftesbury Avenue, W.C.2.

**AGENT ENGINEER** REQUIRED for bridge and road contracts in Oxford. Applicants must be experienced in this type of work. Personal transport will be provided, and there is a pension and life assurance scheme in operation. — Details of age, experience, and salary, in confidence, to Box V.2636, "The Contract Journal."

**GANGERS WANTED** for contracts in South Lancashire/Cheshire. Own following preferred. Top rates and permanency offered to first-class men; no overwork. — Write, giving full details, to **JAMES BEATTY (CONTRACTORS), LTD.**, Helsby Street, Warrington. Tel. 35451.

## BALFOUR, BEATTY AND CO., LTD.

Would like to hear from JUNIOR and ASSISTANT CIVIL ENGINEERS, aged between 23-33 years, who are interested in joining an organisation with worldwide commitments. Applicants should have had sound basic training, and should have had some academic qualifications. The immediate vacancies are in the U.K., with possibility of overseas service later. Salaries, progression, and conditions are attractive. Write details, age, training and experience:

(I.A.M./241),  
**BALFOUR, BEATTY AND CO., LTD.**,  
Bow Bells House,  
Broad Street, Cheapside, London, E.C.4.

**TOP-GRADE DRIVER** WANTED for new 22RB Excavator/Crane. Must be prepared to travel. **DUDLEY VALE, LTD.**, 3 Buckingham Place, London, S.W.1. Tel.: VICTORIA 0252.

**BUILDING MATERIALS SALES MANAGER** REQUIRED for service in West Africa in a firm of international repute. The position involves a wide range of materials required by architects, contractors, builders' merchants and civil engineers. Candidates having their National Building Certificate plus practical experience in building trade, or with a quantity surveyor, will receive particular consideration. Age limit 29. Starting salary will be not less than £1,000 p.a., but this will be increased in accordance with the experience of the successful applicant. This position also offers family allowances, free furnished accommodation, pension fund, free passages. Tours are about 21 months, followed by home leave in U.K. — Write, giving full particulars, to Box V.2635, "The Contract Journal."

**AGENT REQUIRED** for very large contract in the London area. Applicants must have considerable experience in major works involving extensive reinforced concrete construction. Substantial salary is offered, together with bonus. Applicants must have ability to ensure successful production, and only those with experience in supervising large contracts of this type will be considered. — Apply, in writing, stating age, details of experience, etc., to **M. J. GLEESON (CONTRACTORS), LTD.**, Harewood House, Fulham Park, St. James's Place, London, S.W.1.

**CAPABLE GENERAL FOREMAN** REQUIRED for road and sewer contracts; tradesman preferred. Experience on good concrete road construction, and the production of irrefutable references essential. — Write full details to **PERCE CONTRACTORS (1960), LTD.**, Farnham Road, Bishop's Stortford, Herts.

**KEEN young ENGINEER/AGENT** for road and sewer contracts. Commencing salary £1,000 per annum; future prospects according to performance. — Write first to **PERCE CONTRACTORS (1960), LTD.**, Farnham Road, Bishop's Stortford, Herts.

**PLANT MANAGER** REQUIRED by firm of industrial diesel engine distributors in the Manchester area. Successful applicant will control and organise an effective service of spares distribution, supervise a comprehensive stores, be responsible for department's labour, cost and estimates. A good knowledge of diesel injection plant is essential, as well as having sound administrative and practical experience, and capable of enforcing discipline. Full particulars, stating age and present salary, to Box V.2661, "The Contract Journal."



## APPOINTMENTS VACANT

**AGENT REQUIRED** for large outfall sewerage contract near Chester-le-Street, Co. Durham. Applicant must be fully experienced with this type of work and must be able to produce results. Reply, giving particulars of similar type of works carried out, together with salary required, to **DEREK CROUCH (CONTRACTORS), LTD.**, Station Road, Birtley, Co. Durham.

**PLANT AND TRANSPORT MANAGER**—Civil Engineering. MSL have been retained to advise on the appointment of a Plant and Transport Manager—Civil Engineering for a sand and gravel company which in just over 10 years since formation has become one of the largest in its field, and is about to double its size by a take-over. The Plant and Transport Manager will be responsible to the General Manager for the upkeep, maintenance and repair of a fleet of about 200 heavy vehicles and a variety of mobile civil engineering plant. Besides controlling two regional workshops and a staff of 50, he will advise on the suitability of new equipment for future operations. Candidates must have had wide experience of the control of maintenance and repair of a variety of mobile civil engineering plant and transport. A qualification in mechanical engineering is desirable. Salary less than £7500, according to experience. Pension scheme. Car provided.—Please send brief details, in confidence, quoting Ref. YA.2614, to **R. W. H. Lubbock, Management Selection, Ltd.**, 17 Stratton Street, London, W.1. In no circumstances will a candidate's identity be disclosed to our client unless he gives permission after a confidential interview at which he will be given full details of the appointment.

## NATIONAL CONTRACTORS

with headquarters in London, wish to appoint **DESIGN AND PLANNING ENGINEER**. This is a senior head office appointment, and the successful applicant will be responsible for design and planning services throughout the company, both for current contracts and projected work. He will be expected to recruit and organise a team of engineers and draughtsmen to cope with an expanding volume of work. Essential requirements include: extensive experience of design of major temporary works and formwork, sound knowledge of planning and programming, professional qualification and some practical site experience. Attractive salary with usual benefits and excellent prospects await the right man. Write, in complete confidence, to:

**BOX C1785, LPE.**  
Romano House, 399/401 Strand, W.C.2.

**SIR ROBERT McALPINE AND SONS, LTD.**, REQUIRE for Dunneen Nuclear Power Station an experienced **SECTION TUNNEL ENGINEER**, under 35 years, for construction of shield-driven tunnels in compressed air. The successful candidate will have extensive experience in compressed air work. Pension scheme operating. Car subsistence allowance payable under certain conditions.—Write, giving particulars of experience, to Sir Robert McAlpine and Sons, Ltd., 60 Park Lane, W.1.

**A SENIOR ENGINEER/AGENT** IS REQUIRED by contractors based permanently in Nigeria. Applicants should be qualified men with at least 10 years' site experience, of which five years should be in positions of supreme responsibility. Specialised experience in prestressed and reinforced concrete, marine or river works, bridges, dams and major civil works would be an advantage. The starting salary will be in the range of £2,500-£3,000 p.a. plus bonus. Initial tour 24 months followed by two months' paid leave. Free passages by air for agent and wife. This is a senior and permanent appointment with an established and successful company in Nigeria, and could lead to a career in civil engineering at the highest of levels.—Apply in confidence to **J. C. GAMMON (ENGLAND), LTD.**, 202 Sloane Street, London, S.W.1.

**STRUCTURAL STEELWORK**—Design and Supervision Staff.—One of Britain's largest steelworks has vacancies in its development department for **DESIGN ENGINEERS**—with A.M.I.C.E. or A.S.T.C.E., or who hold equivalent qualifications. Experience in heavy industrial structures would be an advantage. **DESIGN ASSISTANTS**—who are registered graduates of the Institute of Structural Engineers or hold H.N.C. with endorsement in civil engineering subjects. Experience in heavy industrial structures would be a decided asset. **CLERK OF WORKS**—Structural Steelwork Clerks of Works, who are required to inspect and supervise structural steelwork erection contracts. The successful candidate must have had experience in heavy industrial mill building type of construction, and preferably some previous experience as structural steelwork inspector on the maintenance of structures applicable to the iron and steel industry.—Please apply, with details of experience, qualifications, and age, to Box V.2654, "The Contract Journal."

**SIR LINDSAY PARKINSON AND CO., LTD.** REQUIRE for their head office in London the following staff:

(1) **SENIOR CIVIL ENGINEER**—Applicants must be experienced contracts engineers, preferably qualified, who have been employed in a senior capacity on site and with good knowledge of contract planning and of the design and construction of cofferdams, stagings, formwork, etc. Age 32-45. Requirements similar to (1), but age 25-35.

(2) **CIVIL ENGINEERS**—Quick, accurate draughtsmen with minimum of five years' experience in contractors' or consultants' offices, drawing office, capable of working with minimum supervision.—Excellent salary and prospects to suitable applicants, who should apply, in writing, to:

**SIR LINDSAY PARKINSON AND CO., LTD.**,  
6 Lambeth Road, London, S.E.1.

**FIRM** of national building contractors REQUIRE **FIRST-CLASS REINFORCED CONCRETE GENERAL FOREMEN** for work in Northern Area. Permanent and pensionable positions. Right applicants.—Write to Box LL.398, "The Contract Journal."

**TURRIF CONSTRUCTION CORPORATION** intend to appoint a **REGIONAL OFFICE MANAGER** based on Warwick. The job will be to organise and control site administration on a common pattern. Must be thoroughly experienced in controlling the administration of building and civil engineering contracts, large and small, and have a proven record with substantial organisation dealing with large contracts. A car will be provided. Attractive salary. Bonus and pension scheme. Excellent opportunity for permanent advancement.—Write Group Personnel Manager, Turrif Construction Corporation, Ltd., Budbooke Road, Warwick.

## APPOINTMENTS VACANT

**ESTIMATOR** urgently REQUIRED by aluminium engineering firm making all types of windows and formed-sheet components for building industry. Permanent, progressive appointment in pleasant area with successful, young company. Superannuated. Write, stating experience, previous employers, and salary required, to **ALUMIN BUILDING COMPONENTS, LTD.**, Weston-super-Mare.

## CONTRACTS MANAGER (BUILDING)

For a leading building and civil engineering company with an expanding organisation. He will be responsible to the director in charge of construction. His duties will be mainly concerned with contract management, and he will control assistant contract managers who are responsible for general building and local authority housing contracts of several million pounds in value. This is a very important post and holds great opportunities for the advancement of the successful candidate who must have several years' experience in contract management and be of proved ability. The position offers a high salary, superannuation, profit-sharing scheme, top-hat pension and other benefits. Successful candidates, quoting Ref. 860, should be sent, in confidence, to:

**A. C. Bryant, Managing Director.**  
**C. BRYANT AND SON, LTD.**,  
Small Heath, Birmingham, 10.

**EXPERIENCED AGENTS AND ENGINEERS** REQUIRED by civil engineering and building contractors. Permanent, progressive position; pensionable after probationary period.—**THOMAS VALE AND SONS, LTD.**, Stourport-on-Severn. Tel.: Stourport 2462.

**EXPERIENCED ESTIMATOR**, preferably with site experience, REQUIRED by civil engineering and building contractors. Permanent, progressive position; pensionable after probationary period.—**THOMAS VALE AND SONS, LTD.**, Stourport-on-Severn. Tel.: Stourport 2462.

**SITE SAFETY OFFICER** REQUIRED on Padham "B" power station, now under construction. Applicants should currently hold a similar position. Application to be made in writing, stating qualifications, age and salary required, direct to the Agent, **M. J. GLEESON (CONTRACTORS), LTD.**, Padham "B" Power Station, Padham, near Burnley, Lancs.

**ASPHALT** and tarmacadam surfacing contractors REQUIRE **FIRST-CLASS FOREMEN, MATES, RAKEHANDS** and **ROLLER DRIVERS** for work in the London and Home Counties area and the Midlands area.—Write to Box V.2663, "The Contract Journal."

**TARMACADAM** surfacing contractors operating in London and Home Counties will REQUIRE, during the coming months, a **FIRST-CLASS CONTRACTS SUPERVISOR** resident in the area to deal with contracts in their Eastern area. Duties will consist of initial site inspections and reports for estimating purposes, and complete supervision of contracts, including measuring, etc., up to and including final invoice stage. Car provided, and company superannuation scheme in operation. Commencing salary £16 per week.—Write Box V.2662, "The Contract Journal."

## QUANTITY SURVEYOR

(Aged 28-35 years) REQUIRED urgently by City engineering firm with wide-wide interests. Applicants should be fully experienced in all aspects of Q.S. work, with emphasis on civil engineering. Must be prepared to travel. A good salary is offered, and prospects are above average. Pension fund and luncheon club facilities.—Write details, age, training and experience:

**(I.A.M. 240).**  
**BALFOUR, BEATTY AND CO., LTD.**,  
Bow Bells House,  
Broad Street, Cheapside, London, E.C.4.

**EXPERIENCED CIVIL ENGINEERS** REQUIRED for the South Wales area. Permanent positions to suitable applicants. Pension scheme.—Apply, giving full particulars, to **JOHN MORGAN (BUILDERS), LTD.**, 14 Cathedral Road, Cardiff.

**AGENTS AND FOREMEN** REQUIRED for housing contracts in Swansea area. Permanent position for suitable applicants.—Please reply, stating age, previous experience, and salary required, to Box V.2659, "The Contract Journal."

**STRUCTURAL OR CIVIL ENGINEER**—Vacancy exists for qualified **STRUCTURAL OR CIVIL ENGINEER** to fill key post incidental to bridge engineering. Excellent prospects, pension scheme. Apply in confidence, giving age, details of education, qualifications, experience, and salary required, to the Secretary, **RAPID METAL DEVELOPMENTS, LTD.**, 395 George Road, Birmingham, 23.

**SENIOR AGENT** REQUIRED for long-term building contract, Home Counties. Good salary, bonus and conditions for first-class man with drive and able to work on own initiative.—Apply G.4, **JAMES MILLER AND PARTNERS, LTD.**, Pump Lane, Hayes, Middlesex.

**CIVIL ENGINEERS** REQUIRED for steelwork construction contracts in the North-East. Fully experienced and accurate in setting-out, able to work on own initiative and measure-up as work proceeds. Good prospects, with salary according to ability. Write Box V.2656, "The Contract Journal."

For Advertisements received too late for classification see page 1157

## APPOINTMENTS WANTED

**ENGINEER** (31), varied experience, including major road works, SEEKS **PERMANENT POSITION** with prospects. Write Box W.2595, "The Contract Journal."

**CIVIL ENGINEER**, 52, qualified, REQUIRES **APPOINTMENT** as **DIRECTOR / GENERAL MANAGER**. Wide and varied association with the industry. Good commercial background. Write Box W.2641, "The Contract Journal."

**PLANT ENGINEER**, 20 years' experience at home and abroad with all types of heavy equipment and allied contractors' plant, REQUIRES **EXECUTIVE POST**. Technical administration covering plant ownership, costing, spares provisioning, plant inspection for overhaul, purchase, site maintenance and workshop control. Married. Public school education. Write Box W.2488, "The Contract Journal."

## WORK REQUIRED

**SITE CLEARANCE, BULK EXCAVATION.** **JANES AND CO., LTD.**, Trading Estate, Slough. Telephone. Slough 20361—Ext. 4.

**SAM BOOTH, LTD.**, Perrymount Chambers, Haywards Heath, Sussex. Tel.: Haywards Heath 1126 and 1258. **SUB-CONTRACTOR** or **HIRE**: D9s, with Bulldozer and Caterpillar 463 Scrapers.

**FOR HIRE**, One Drott and Six **TIPPER LORRIES**. **CLEARANCE**, Direct or sub-contract. **I. W. DOYE AND CO.**, Demolition Contractors, 188 Plumstead High Street, S.E.18. Woolwich 6318.

**UPROOTING**—TREES, STUMPS, HEDGES, etc. We have the most experience and all modern equipment.—**T. GRAVESON, LTD.**, Warton, Carnforth, Lancs. Telephone: Carnforth 381 and 382.

**BULK EXCAVATIONS**, any quantity quoted for. Own plant and lorries. **COFF AND SON (EXCAVATIONS), LTD.**, Buckhurst Hill, Cheshire, Ascot, Berks. Ascot 1026/7/8.

**BULK EXCAVATION WANTED**—We have our own staff of qualified Civil Engineers, and have the following machines ready for hire: D9s, D8s, D4s, with Dozers, Scrapers and Rotters. Also Ruston Excavators with all equipments, and a fleet of new Tipping Lorries. No job is too small or too large. **SMITHS PLANT HIRE AND CONTRACTORS (CHELTENHAM), LTD.**, Southam Court, 98 Prestbury Road, Cheltenham, Glos. Tel. 52021/56419/56473.

**BULK EARTHMOVING** by DW21s, D9s or D8s **STANTIAN PLANT, LTD.**, Ebbingham Street, Rotherham. Telephone: Rotherham 79271-2.

**ALLEN OXFORD GRADERS** for **HIRF** **GRASSPALLETS, LTD.**, Hampton Hill, Middlesex. Telephone: Molesey 4343.

**WANTED. EXCAVATION, SITE CLEARANCE** and **DEMOLITION WORK.** **R. BARKER (PECKHAM), LTD.**, New Cross 3337.

**EXCAVATION SUB-CONTRACTS**. Technical staff available, to analyse, programme and price complex projects. Particular attention given to finish and compaction. D9, D8, TD18 and TD14 Scrapers, Excavators, Loading Shovels and Lorries available with competent and imaginative supervision for execution of work.—**DICK HAMPTON**, Broadview Farm, Blacknest, Alton, Hants. Tel.: Bentley 2241.

**BULK EARTHMOVING**, direct contract or sub-contract. Also **BULLDOZERS** and **SCRAPERS** for **HIRE**—**FRANK R. WALPOLE, LTD.**, 126 Wing Road, Leighton Buzzard, Beds. Leighton Buzzard 3351.

**U.S. AND OVERSEAS MOBILE UNITS** coverage on ex-service strong points, sea walls and dangerous structures, etc.—124 Old Shoreham Road, Southwick, Sussex. Tel.: Southwick 3791 or Shoreham 4193.

**IF TREES, ROOTS OR UNDERGROWTH** feature in your contract, we would be pleased to quote for their economical disposal.

**BAGSHOT SAWMILLS, LTD.**, 32 London Road, Camberley, Surrey. Telephone 14.

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###### DISPOSAL OF SURPLUS VEHICLES.

TENDERS are invited for the FOLLOWING:—One Dennis 3-ton Tipping Lorry, 1947. One Dennis 3-ton Tipping Lorry, 1948. One Chasid 1½ cu. yd. Hi-Lift Shovel, 1948. Inspection may be made by arrangement with the Sewage Works Engineer. Telephone: Escher 3259, at Escher Sewage Disposal Works, Farm Road, Escher, on WEDNESDAY, the 14th September, 1960, between the hours of 9 a.m. and 4 p.m. Tenders may offer for all or any of the above vehicles.

The Council do not bind themselves to accept the highest or any Tender. Tenders, in sealed envelopes, bearing no name or mark indicating the sender, endorsed "Surplus Vehicles," must be received by the undersigned not later than 5 p.m. on FRIDAY, the 23rd September, 1960.

FREDERICK EDWARDS,  
Clerk of the Council.

Council Offices,  
Escher, Surrey.  
29th August, 1960.

##### HORNCHURCH URBAN DISTRICT COUNCIL.

###### SALE OF SURPLUS PLANT.

OFFERS are invited for the PURCHASE of a Lewin ROAD SWEEPER (year of manufacture 1949). This machine is offered for sale without guarantee as to condition, and may be inspected at the Council's Depot, Upper Rainham Road, during normal working hours, Monday to Friday, 9 a.m. to 5 p.m.

Offers should be sent to the CLERK OF THE COUNCIL, Billet Lane, Hornchurch, not later than 19th SEPTEMBER, 1960.

OWING to completion of contract, the following machines are available for DISPOSAL.

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Byers CRAWLER CRANE.  
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Pescara Muntz COMPRESSOR.  
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In Voluntary Liquidation: Arthur Sheldon and Sons, Ltd., 15 WENTWORTH STREET, ILKESTON JUNCTION, DERBYSHIRE.

CLAMP AND WILLS have received instructions from John W. Hardy, Esq., F.C.A., the Liquidator, to sell by AUCTION from catalogue, on the PREMISES as above, at 10.30 a.m. on THURSDAY, SEPTEMBER 15th, 1960, the Valuable

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AT 12 NOON PROMPT THE MOTOR VEHICLES WILL BE OFFERED.

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Catalogues may be obtained from the Auctioneers' Offices: 4-6 St. Peter's Gate, Nottingham (Tel. 50897/8); or from the Liquidators, Messrs. HARDY, NEWSUM-SMITH, Chartered Accountants, Russell Place, Talbot Street, Nottingham (Tel. 46241), seven days prior to Sale.

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Catalogues at place of Sale of S. M. TIDY (PUBLIC WORKS), LTD., Civil Engineering Contractors, 161 Preston Road, Brighton, 6, or of T. BANNISTER AND CO., F.T.I.C.S., Market Place, Haywards Heath. Telephone 607.

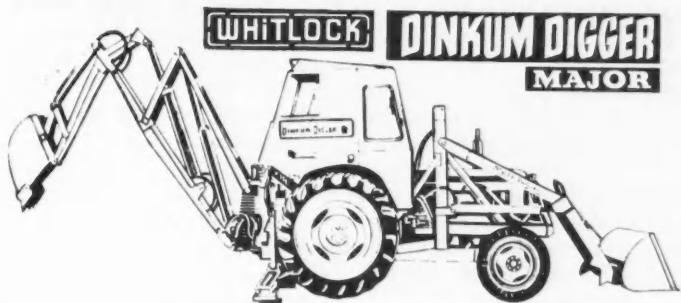
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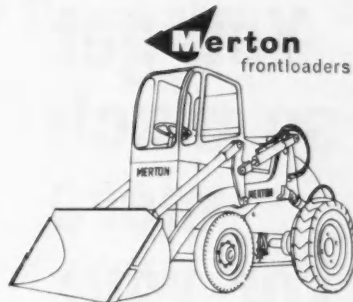
The Solicitors: **T. D. MORGAN AND CO.**, 11 Rumbold Street, Liverpool, 2 (Tel.: Central 1744); and **WYMAN-HALES**, 12 White Friars, Chester (Tel.: Chester 23514); or the Joint Auctioneers: **S. D. LAMBERT, Esq.**, F.R.I.C.S., F.A.I., 23 Hamilton Square, Birkenhead (Tel.: Birkenhead 6112/3); and **W. F. BEAVAN AND CO.**, 7 Union Court, Cook Street, Liverpool, 2 (Tel.: Central 7381/5). And at 3 Grange Road, West Kirby (Tel.: Hoylake 89), and The Cross, Neston (Tel.: Neston 1535).

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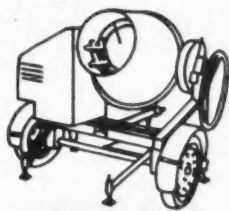
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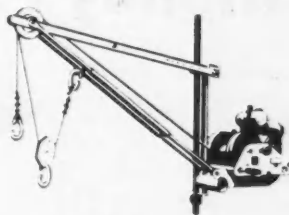


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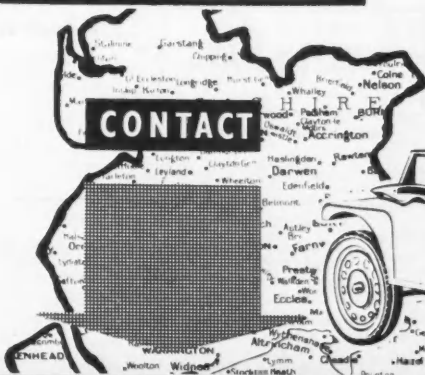


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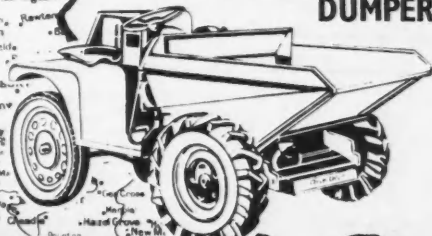


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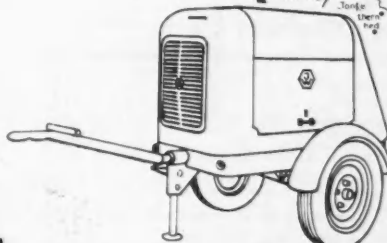
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## Advertisements received too late for Classification

### CITY OF CARLISLE.

BLACKWELL ROAD AND ST. NICHOLAS BRIDGE RECONSTRUCTION.

TENDERS are invited for the ABOVE. The work comprises Reconstruction of existing Granite Set-paved Carriageway in Lean-mix Concrete and Asphalt Surfacing, together with Flagged Footpaths. Particulars from City Surveyor, 18 Fisher Street, Closing date, 22nd SEPTEMBER, 1960.

H. D. A. ROBERTSON,  
Town Clerk.

### NESTON URBAN DISTRICT COUNCIL.

GARAGE BASES AND ANCILLARY WORKS.

TENDERS are invited for the CONSTRUCTION of ACCESS ROAD, Concrete Bases and other ancillary works in connection with the PROPOSED ERECTION of GARAGES on the Council's LIVERPOOL ROAD/RABY PARK ROAD HOUSING ESTATE, as under: 12 Garages off Hawkins Road, Neston; 2 Garages off Shakespeare Road, Neston.

Drawings may be inspected at the Office of the Engineer/Surveyor, Town Hall, Neston, from whom the Conditions of Contract, Specifications, Bills of Materials and Form of Tender may be obtained. Tenders, in plain sealed envelopes endorsed "Tender—Garage Bases" must be received by the undersigned not later than 12 Noon on MONDAY, 26th September, 1960.

The Council do not bind themselves to accept the lowest or any Tender or any part thereof.

F. H. D. HARTMAN,  
Clerk of the Council.

Town Hall,  
Neston, Wirral,  
8th September, 1960.

### COVENTRY CORPORATION.

LEAMINGTON ROAD IMPROVEMENT.

TENDERS are invited for WIDENING and RECONSTRUCTION of LEAMINGTON ROAD between the junctions with Baginbun Road and Thirsk Road, including approx. 4,400 sq. yd. Lean-mix Concrete Base and Bituminous Surfacing, 615 lin. yd. 9in. and 12in. dia. S.W. Sewer, Kerbing, Footway and all ancillary work.

Documents and Drawings may be inspected on application to the CITY ENGINEER, Council House, Coventry, from whom Bills of Materials and Form of Tender may be obtained on payment of £5, returnable on receipt of a bona-fide Tender by First Post on FRIDAY, 23rd September.

**JUNIOR CIVIL ENGINEERS REQUIRED** for bridge construction and dual carriageway project in the Bristol area. Efficient knowledge with survey instruments necessary. Apply: stating age, experience, qualifications, etc., to: SYDNEY GREEN AND SONS (CONTRACTORS), LTD., Highwood Lane, Cribbs Causeway, Bristol. This project will provide excellent opportunities in modern motorway construction for the young engineer.

**CONTRACTORS' AGENTS REQUIRED** to supervise mobile labour gangs on long-term contracts in the London area. Applicants must be familiar with the W.R.A. and experienced in handling and organising labour.—Write, giving details of age, experience, etc., which will be treated in the strictest confidence, to THE EAGRE CONSTRUCTION CO., LTD., East Common Lane, Scunthorpe, Lincs.

**FITTERS REQUIRED**, experienced in the repair and maintenance of civil engineering plant.—Apply in writing, stating age, experience, etc., to the Plant Manager, R. D. MCLEOD (CONTRACTORS), LTD., 38 Sword Street, Glasgow, E.1.

**TIMEKEEPER/WAGES CLERK REQUIRED** for long-term contract in the London area. Applicants must be well versed in W.R.A. and P.A.Y.E. procedure.—Write, giving details of age, experience, etc., which will be treated in the strictest confidence, to THE EAGRE CONSTRUCTION CO., LTD., East Common Lane, Scunthorpe, Lincs.

**SITE ENGINEERS.**—If you are ambitious and anxious for rapid promotion in position with responsibility and salary, and are young with a few years' setting-out experience on contracts, we have several positions open and invite you to get in touch with us to discuss details, terms and conditions. WILSON LOVATT AND SONS, LTD., Clarence Street, Wolverhampton.

**CIVIL ENGINEERING** contractors expanding their organisation wish to appoint a SENIOR SITE ENGINEER for roadworks and main drainage contracts in the Oxfordshire area. Salary range of £1,000-£1,250 p.a. Permanent and progressive post, with superannuation scheme.—Write in confidence, stating age, full details of experience, and past employers, etc., to Box V.2652, "The Contract Journal."

**DAYWORK CLERK WANTED**, preferably with some experience of building construction or civil engineering works, for Derby and Burton area. Apply M. J. GLEESON (CONTRACTORS), LTD., Willington "B" Power Station, Willington, Derby.

### SOKE OF PETERBOROUGH COUNTY COUNCIL.

ROADS AND BRIDGES DEPARTMENT.

CLEFT CHESTNUT FENCING.

TENDERS are invited for the SUPPLY of 1,000 lin. yd. of CLEFT CHESTNUT FENCING, together with 375 CHESTNUT POSTS.

Full particulars and the Form of Tender may be obtained from the County Surveyor, County Offices, Bridge Street, Peterborough.

Tenders must be delivered, in the envelope provided, bearing no mark indicating the sender, to the undersigned not later than SATURDAY, 1st October, 1960. Neither the lowest nor any Tender will necessarily be accepted.

ERIC P. SMITH,

Clerk of the County Council.

County Offices,  
Bridge Street,  
Peterborough,  
2nd September, 1960.

### CHICHESTER AND SIDCUP URBAN DISTRICT COUNCIL.

ERECTION OF 82 DWELLINGS, 45 GARAGES AND COMMUNITY ROOM—NORTHCOTE ROAD ESTATE, SIDCUP, KENT.

Contractors wishing to TENDER should apply immediately to ENGINEER AND SURVEYOR, Manor House, Sidcup, enclosing £3 3s., refundable on receipt of a bona-fide Tender, not subsequently withdrawn. Tender documents will be despatched early in October.

### URBAN DISTRICT COUNCIL OF KIDSGROVE.

FOOTPATH SURFACING.

TENDERS are invited for the PREPARATION and SURFACING of 1,235 sq. yd. of TARMACADAM FOOTPATH and 2,675 sq. yd. of CONCRETE SLAB FOOTPATH on TWO ESTATES in the KIDSGROVE WARD.

Specifications and Bills of Materials may be obtained from the Engineer and Surveyor on payment of a deposit of One Guinea, which will be returned on receipt of a bona-fide Tender not subsequently withdrawn.

Tenders, in a plain sealed envelope, must be delivered to me not later than 12 Noon on WEDNESDAY, 21st September, 1960.

The Council does not bind itself to accept the lowest or any Tender.

O. LLOYD HURST,

Clerk of the Council.

Town Hall,  
Kidsgrove, Staffs.,  
September, 1960.

**EXPANDING** building and civil engineering company REQUIRE CONTRACTS MANAGER to supervise mainly building works on a number of sites in the North of England and Scotland. The applicant to be based in Lancashire and a company car is provided. A pension scheme is in operation.—Write, stating age, education, experience, and salary required, to Box V.2665, "The Contract Journal."

**CIVIL ENGINEERING ESTIMATOR REQUIRED.** The position offers scope for a person with initiative and preparedness to accept responsibility for pricing on a truly competitive basis. There is a contributory pension scheme in force. The location is Sheffield.—Apply in strict confidence to the Chief Engineer, N.S.M. GROUP OF COMPANIES, Knowle House, Norfolk Park Road, Sheffield, 2.

**CARPENTERS REQUIRED** immediately for bridge contract in Worcester. Production bonus and subsistence.—Apply on site or write to General Foreman, LOMOUNT CONSTRUCTION, LTD., adjoining The Rectory, Crimsall, near Hadzor, Droitwich. Telephone: Droitwich 2004.

**OFFICE MANAGER REQUIRED**, with experience in the industry, by medium-sized firm of road surfacing contractors, to take charge of all book-keeping, P.A.Y.E. and general office administration. There are excellent prospects for a person with good qualifications and ability. The appointment carries staff status with non-contributory pension scheme and life assurance cover, after completing a probationary period.—Apply in strict confidence to MESSRS. IBMAC, LTD., Dockfield Road, Shipley, Yorks.

**HIGHWAYS FOREMAN REQUIRED.** Salary range, including Weighting, £565/£630 p.a. Applicants should have all-round experience in the construction, repair and maintenance of highways and sewers. Application forms obtainable from the BOROUGH ENGINEER AND SURVEYOR, Poplar Town Hall, Bow Road, E.3. Closing date: First Post, Monday, 19th September, 1960.

**CLERICAL ASSISTANTS** to Supervisors in contract department. First-class opportunities for bright young men with general building background, and experience. Hours 9.30-5.30. West End. No Sats. Write fully, stating experience, and salary, to Box V.2664, "The Contract Journal."

### BOROUGH OF BURY ST. EDMUNDS.

HOSPITAL ROAD (PART)—WIDENING AND RECONSTRUCTION, CARRIAGEWAYS, FOOTPATHS AND SEWERS.

TENDERS are invited for the CONSTRUCTION of CARRIAGEWAYS, FOOTWAYS and SURFACE WATER SEWERS at HOSPITAL ROAD.

The work comprises the Laying of 3,500 sq. yd. of Base Course and Wearing Course Asphalt, Carriageways, 600 lin. yd. of Concrete Kerb, 1,125 sq. yd. of Concrete Paving, 1,265 sq. yd. of Grass Verges, and 375 lin. yd. of 6in. dia. and 9in. dia. Surface Water Sewers.

Form of Tender and Bill of Materials may be obtained from the Borough Surveyor at the address below upon payment of a deposit of £2 2s., which will be refunded on receipt of bona-fide Tender and the return of all documents. Drawings and Conditions of Contract may also be seen at that address. Tenders must be delivered to the undersigned not later than 12 Noon on 27th SEPTEMBER, 1960. The Council do not bind themselves to accept the lowest or any Tender.

RICHARD R. HILES,  
Town Clerk.

Borough Offices,  
Bury St. Edmunds.

### BOROUGH OF DUNSTABLE.

MAKING-UP OF KATHERINE DRIVE (EXTENSION).

TENDERS are invited on a fixed-price basis for the MAKING-UP of the ABOVE STREET.

The works comprise some 2,000 sq. yd. of Bitumen Macadam Surfacing, 450 lin. yd. Stone Paving, together with Surface Water Drainage, Street Lighting and other incidental works.

Tender documents may be obtained from the Borough Engineer, Municipal Offices, Dunstable, on payment of a deposit of £2 2s., and Drawings may be inspected at his Office during normal working hours.

Tenders must be delivered to the undersigned not later than 12 Noon on FRIDAY, 30th September, 1960. The Council does not bind itself to accept the lowest or any Tender.

JACK SMITH,  
Town Clerk.

Municipal Offices,  
Dunstable, Beds.,  
5th September, 1960.

**RAPIDLY** expanding firm of structural engineers supplying components for large prefabricated buildings REQUIRES two CONTRACT OFFICERS. These are new positions, and persons appointed will be responsible for the company's activities in the area allocated to them. They will be based in the Midlands and considerable travelling will be involved. Applications are invited from persons aged 35-40 who have had an all-round experience in the building industry and who are used to negotiating with senior architects and Government Departments.—Write full details of previous experience, salaries earned, etc., to Box V.2658, "The Contract Journal."

**SITE ENGINEERS REQUIRED** for building contracts in London area. Must have considerable experience in multi-storey concrete-framed buildings. Good salary for merit with initiative.—Apply in writing, stating age and experience, to M. J. GLEESON (CONTRACTORS), LTD., Haredon House, London Road, North Cheam, Surrey.

**CASHIERS REQUIRED** for site office work in the North-East. Applicants should be fully experienced in civil engineering building. Permanent position and good conditions for suitable man.—Write Box V.2657, "The Contract Journal."

**ASSISTANT ENGINEER REQUIRED** by major civil engineering and building contractors operating on a national scale on nuclear, steam and hydro-electric projects. This permanent appointment is initially for a major civil engineering contract, with excellent opportunities for advancement. Good salary and conditions, and entry into superannuation scheme after 12 months' service.—Apply to THE MITCHELL CONSTRUCTION CO., LTD., Wharf Works, Peterborough.

**SENIOR ESTIMATOR REQUIRED** by firm of civil engineering contractors. Head office appointment. Reading area. Permanent and progressive post, with superannuation scheme in operation.—Write in confidence, stating age, full details of experience with past employers, and salary required, to Box V.2653, "The Contract Journal."

**BUILDING ESTIMATOR.**—If you are young and have H.N.C. or L.O.B. in building and some experience in building-up prices for estimating, we have a progressive vacancy and offer a good salary to a suitable applicant.—Please get in touch with WILSON LOVATT AND SONS, LTD., Clarence Street, Wolverhampton.

**PUBLIC WORKS** contractors REQUIRE a MANAGER for their road surfacing department. Must be fully conversant with road surface contracts, control of labour and plant, and the ability to estimate would be an advantage. Applications invited from persons possessing a sound knowledge of the industry.—Write, stating experience and qualifications, to Box V.2640, "The Contract Journal."

## URGENTLY WANTED BY FOREIGN CONCERN

- 1 Jones KL 33 mobile crane 3 ton
- 2 Coles S 510 mobile cranes 6 ton
- 2 Coles S 1210 mobile cranes 10 ton
- 1 Lorry-mounted crane 35 ton, max 50% of new price
- 2 Crawler cranes NCK 304 or RB22 with dragline and F/S equipment
- 1 Forklift truck 6000 lbs, short turning-circle
- 1 Caterpillar Grader No. 12 or 112

Offers with full details, standing-place, and photographs before 15th September 1960.

Write Box P.2629 "The Contract Journal"

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bogies

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c/w bogies

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Barber-Greene

### COMPACTION ROLLERS

Albaret  
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### TRACTORS

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Allis-Chalmers HD.19  
and HD.20  
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9 cu. yd., 14½ cu. yd.,  
20 cu. yd., and  
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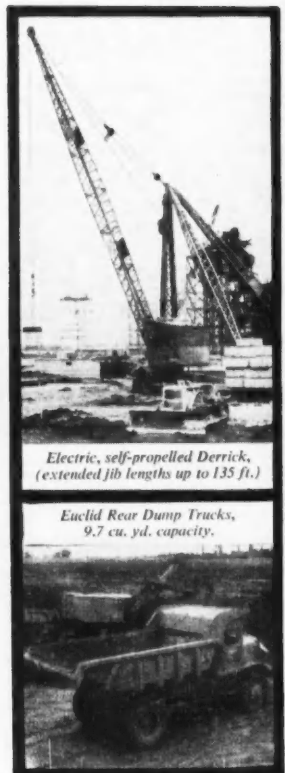
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# THE CONTRACT JOURNAL

INCORPORATING

THE BRITISH CONSTRUCTIONAL ENGINEER AND THE CONTRACTOR

**THE CONTRACT JOURNAL**

Incorporating  
THE BRITISH CONSTRUCTIONAL ENGINEER  
and  
THE CONTRACTOR  
Established 1879

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Editor:

LAWRENCE MCCARTHY

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**Advertisements**

Advertisement rates may be obtained on application to R. Binfield, Advertisement Manager.

**FINANCIAL BURDEN**

IN a memorandum, which they have submitted to the Minister of Transport, Manchester City Council criticise the Government for being "grossly unfair" to road users and to local authorities. The memorandum points out that the Council spent £1,290,405 on roads during 1958-59 and received only £116,743 in Government grants. In the same period the Council paid £792,904 in licences and fuel tax for their vehicles, and licensing duties collected by the local taxation office from motorists totalled £1,450,667.

Many local authorities, of course, have complained about the inadequacy of grants, but Manchester Council especially have good reason for they are faced with a four-year road programme which will cost £11m. Under the present system of grants £3m. of this will be borne by the rates—the debt charges being equivalent to a rate of 1s. 2d. in the pound.

Even an authority as important as Manchester must regard such a prospect with apprehension and it is quite understandable why the Council have been so outspoken. However, it remains to be seen whether or not action will be taken by the Government to ease the financial burden which handicaps not only Manchester but many other local authorities in their endeavours to improve their road systems. There can be no doubt that until this action is forthcoming the road problem will never be solved despite the construction of new motorways.

**Practical Training Success**

SINCE it was inaugurated in 1944, over 300 young engineers have gained their A.M.I.C.E. under the practical training scheme run jointly by the Federation of Civil Engineering Contractors and the Institution of Civil Engineers. A survey by the Federation shows that more than 80 per cent. of these men had graduated in engineering before they became indentured under the scheme, and experience indicates that graduates usually take about five years to qualify. Non-graduates who have to combine their theoretical studies with the practical training usually take about eight years.

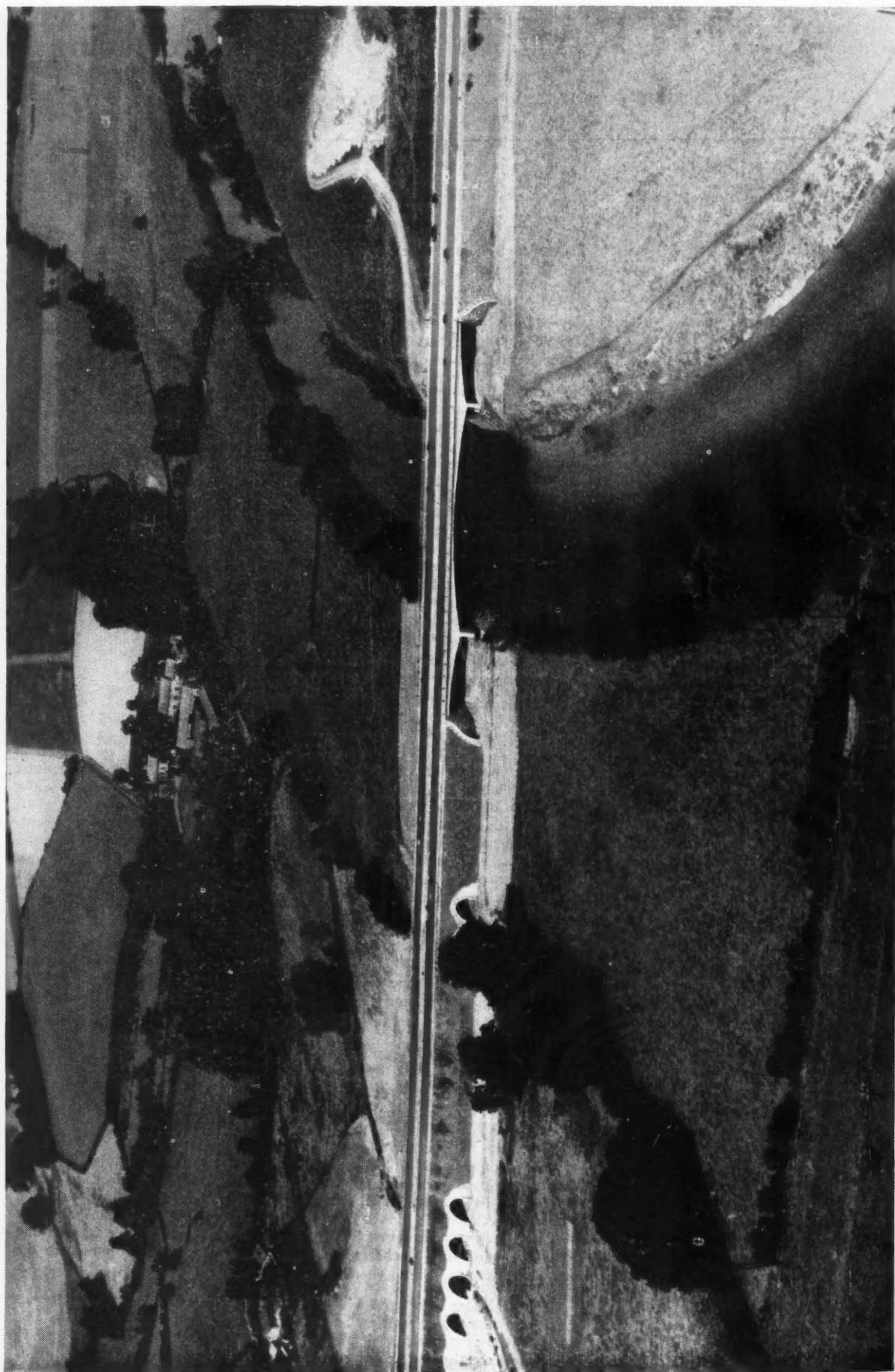
During the past two years the number of indentures has risen to over 160 per year, but of particular interest is the large increase in the number of graduates who have become indentured under the scheme. Wherever possible, it is to be hoped that this trend will be encouraged because of the continuing need for many more qualified engineers.

**Early Planning**

WHILE the building boom shows no signs of slowing down in Australia, its accompanying problems—traffic and transport, unsightliness, outward sprawl, high prices, sewerage lag—have been intensified by the lack of overall planning. Most experts in Australia seem to be agreed on the need for a comprehensive plan for inner city development for all that country's large cities, and there are signs that Sydney, for instance, is now taking its planning problem in hand with a scheme of concentration—proper development in the inner city—decentralisation—satellite towns.

The problems associated with Australia's building are not very different from those of other countries, as a correspondent reports elsewhere in this issue. But the important thing is for responsible authorities everywhere to realise the necessity for proper planning at the earliest stage possible. It is a pity this was not fully appreciated in the United Kingdom many years ago.





Aerial view of Bridatow Bridge, showing embankment and flood relief arches, constructed on flood plain of the River Wye

## ROSS BY-PASS OPENED

### Prestressed Bridge Spans River Wye

**T**HE opening last Saturday of the Ross By-pass now enables traffic from South Wales for the Midlands to move freely past the town of Ross from the new Wilton roundabout at the junction of the Ross-Hereford (A.49) and Ross-Monmouth (A.40) roads, along the By-pass to the Ledbury (A.449) road and to the commencement of the Ross Motorway which will be opened before the end of the year.

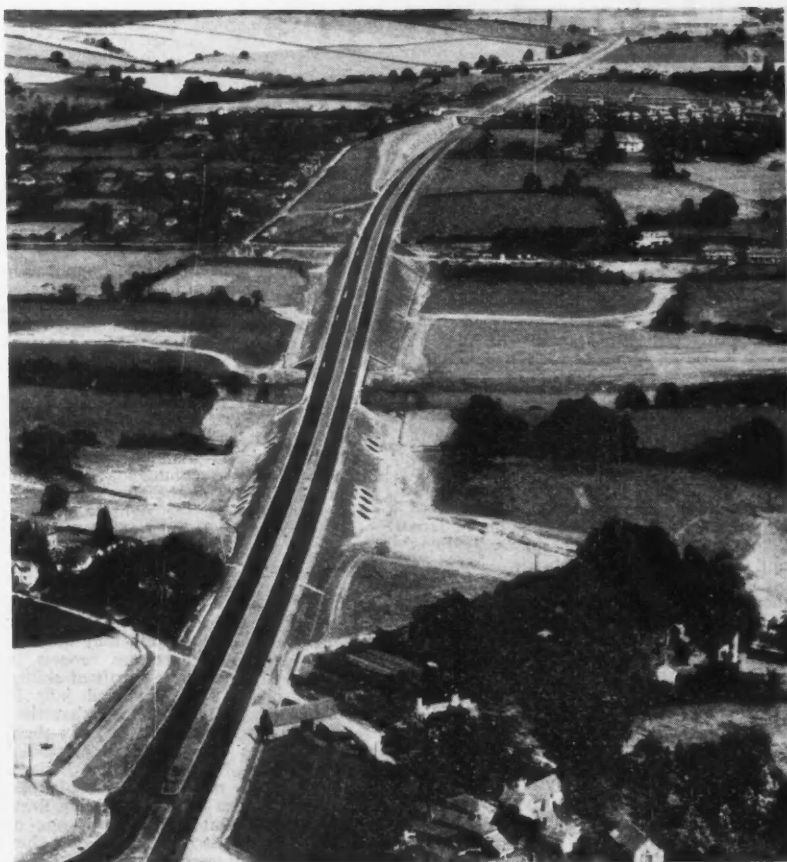
Although not a part of the motorway, the by-pass is an essential part of the motorway scheme, with 24ft. carriageways, a 13ft. central reservation and hard shoulders.

An embankment 2,000ft. long, rising to a height of 33ft. carries the by-pass across the flood plain of the River Wye. The river is crossed by the Bridstow Bridge, a graceful prestressed concrete structure 353ft. long, with a central span of 203ft.

#### Ross By-pass

The by-pass, over two miles long, starts at the new Wilton roundabout and from there crosses the flood plain of the River Wye on an embankment through which seven flood relief arches are provided, and over the River Wye by the Bridstow Bridge.

After crossing this bridge the by-pass is carried over the Ross-Hereford railway and a minor road by the Homs Road Bridge which is a two-bay portal frame bridge in reinforced concrete. It then enters a rock cutting 35ft. deep before passing under the Ross-Brampton Abbotts road bridge; this is a two-span hollow slab concrete bridge, the deck of which is seated on rubber bearings.



Aerial view of the by-pass

The by-pass next joins the Ross-Ledbury road (A.449) which for about half a mile has been reconstructed with dual carriageways and which connects to the motorway, where there is also a connection with the road to Ledbury and the Ross-Newent road.

#### Bridstow Bridge

This bridge is a three-span structure with a total length of 353ft.; it has a 203ft. clear span in the centre and two approach spans each 75ft. long.

The bridge structure carries the dual carriageway and is supported by two reinforced concrete piers, one on either side of the river, and reinforced concrete abutments which also terminate the structure at either end.

The deck consists of prestressed concrete approach and cantilever spans supporting the prestressed concrete suspended span.

There are nine main beams, interconnected by reinforced concrete diaphragms, which support the reinforced concrete deck slab.

The decks are topped by a concrete screed laid to falls covered by a bituminous

sheeting water-proofing membrane protected by quarry tiles. The bridge deck is then surfaced with hot rolled asphalt.

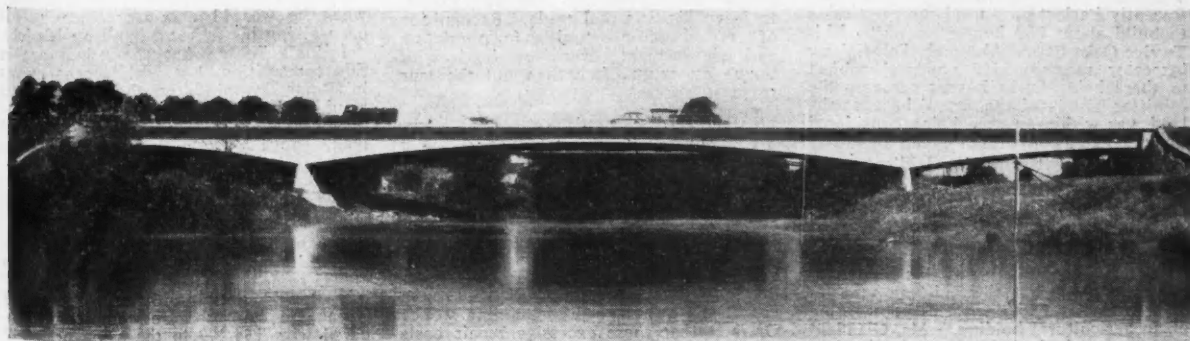
The dual carriageway on the bridge is divided down the centre by a strip of precast concrete paving slabs flanked by concrete kerbs. A similarly paved strip extends along each side of the bridge, terminated at their outer edges by concrete kerbs in which railings of tubular steel are set.

The mass concrete pier foundations are continuous and extend some 16ft. below the level of the river banks to a bed of red sandstone rock. The upper parts of the pier foundations and the abutments on either side are faced with random rough square quarry-faced ashlar. The remainder of the concrete structure is left exposed and given a surface texture by point tooling.

#### Road Construction

As previously stated, the by-pass has twin carriageways each 24ft. wide with flush marginal kerb 1ft. wide on each side of both carriageways. The central reservation

(Concluded on page 1164)



Bridstow Bridge which carries the by-pass over the River Wye

# John Sumner's Notebook . . .

**T**HE circular issued by the Ministry of Housing advising local planning authorities on the various ways in which they can go about making more land available for development, particularly housing, will no doubt cause a certain amount of flutterings in the planners' dovecots.

Those neatly drawn up, coloured maps will need to be substantially revised in some areas if people are to have homes in places reasonably accessible to the areas where their work lies.

The circular may give added impetus to an idea which has been gaining a certain amount of ground in recent months. It is that many local authorities could solve their land problems if only they would devise schemes whereby groups of older-type properties, too big for modern living habits, could be purchased by them and the co-operation of local building organisations sought to clear and lease them.

This would be a big challenge to, and a big opportunity for, the private house-builders. Mr. Frank Russon, chairman of the Birmingham firm of C. Bryant and Son, Ltd., sees it that way, anyway. Quoting Moseley, one of Birmingham's older and once exclusive suburbs, as an example, he considers that if the Corporation of Birmingham could acquire the land, and having acquired it invite builders to buy or lease it—provided they undertook to carry out the planned development laid down by the Corporation—a big contribution could be made towards making more effective use of areas already designated for residential purposes.

At the present time the Birmingham Corporation propose to acquire 17 acres of land at Moseley, but so far there seems to be no move in the direction suggested by Mr. Russon.

Clearly this is not the kind of venture on which most building firms can embark on their own. The high cost of land and the difficulty and expense of negotiating with a large number of individual owners make development on this scale too large for all but a few contractors to contemplate. Comprehensive redevelopment in existing urban areas is a task for local authorities and building firms acting together. In towns all over the country there are thousands of acres of virtually derelict property and I commend to the local authorities concerned Mr. Russon's reasonable suggestion that they acquire the sites, the planners say what they want to put on them and the builders be called in to do the job.

**W**HILE Mr. Russon struggles to find building space in the towns let me now turn to Mr. Dudley Glanfield, who describes himself as "the fighting farmer of Windlesham." He is struggling to find space for building in the countryside. Recently he lost an appeal for permission to build about 200 houses on part of his Twelve Oaks Farm. Although the Ministry inspector recommended approval subject to there being fewer houses per acre the Minister dismissed the appeal because the land was within an area being considered for the extension of the green belt.

What has got Mr. Glanfield's goat is that since then permission has been given for the erection of a large building, which he alleges is a luxury mansion, with hard tennis court, on about six acres of Lord Trefgarne's neighbouring farm. After writing to the Ministry on this Mr. Glanfield was told that the building was required "in connection with the working of an agricultural holding." Mr. Glanfield has protested that the "mansion" when

completed will have over 70 windows and could never by any stretch of imagination be termed a farm house.

All very interesting, isn't it?

I learn that Lord Trefgarne's application for outline permission to build was granted by Bagshot R.D.C. and plans for the farm house and farm office were approved five months later. The plans were supported by the Ministry of Agriculture on agricultural grounds.

In this case I have not the least doubt that there is a great deal to be said on both sides, but I cannot help having some sympathy for Mr. Glanfield's plea for a Bill to implement recommendations of the Franks Committee to the effect that every citizen should have the right to go to a properly constituted Court of Appeal from any public inquiry, tribunal or Minister's decision.

**W**HY do skilled men leave the building trade? The question may surprise many readers but there are reports in some areas of an unending drift of skilled building workers into unskilled jobs in other industries. It is claimed that they can earn more as unskilled workers in these other industries than they can as skilled men in building. This I do not believe. Although there may be a considerable amount of concern in some building firms—and I notice that Doncaster is one of the areas—about the numbers of men they are losing I can assure them that they are not losing their workers because of higher rates of pay. They may, however, be losing them to other industries because there is the opportunity for bigger wage packets. That's a different matter. Factory hours with artificial lighting and no stoppages or putting off for bad weather sometimes persuade men to change jobs. But the benefits are transitory. As soon as a big order has been got out of the way manufacturing firms lose little time in putting off their surplus workers. Although building is a casual industry it is many years since building firms have shown anything like the same readiness to relinquish the services of their regular men.

A more likely factor influencing the drift from building to other industries is that of age. Building is a fairly tough job and by the time they are 40 or 45 some men are tempted at times to seek less strenuous ways of earning a living. In any case, by comparison with other industries, building has always been a "young" industry and is likely to remain so.

If there are firms which are losing men in large numbers I would suggest that they hesitate to jump to the conclusion that it is due to the bigger wage packets available elsewhere. It is not always the "big penny" which persuades a building worker to leave his firm and trade. Recognition of services and opportunities for promotion and advancement—or rather the lack of them—are more often than not the true reasons.

**W**HAT are the repair costs on small dumpers used on building sites? The answer may shock some readers. The new price for small dumpers is round about £350, but it is not unusual for repairs to cost £150 a year or more. Why is this? Is it that the machines are badly made in the first instance? Is it that their design is ill suited to the necessarily rough conditions experienced in building work? Or is it that these excessive repair costs are primarily due to indifferent care and

maintenance by those responsible for their day-to-day operation?

These questions, or rather the answers to them, are of some importance, for the contribution which these machines make to modern building operations is considerable. That in itself is a part answer to the questions on whether the machines are suitably designed and made for their job. If they were not they would not be so popular.

Mr. W. Burton, of Wates' plant department, says that most of the high repair costs go in tyres, transmission units and steel plates. The department reckons that most of the damage is done as a result of bumping up and down kerbs or other obstructions causing bursting and splitting of tyres and tubes, poor lubrication ruining gearboxes, driving axles and steering boxes, and careless towing of mixers and other plant leading to split and buckled steel plates.

Driving a dumper efficiently and maintaining it in good running order is not a job to be entrusted to someone who can merely drive. A certain amount of care is needed to select the right type of people for this kind of job, and if the estimated repairs costs I have mentioned are to be avoided some steps should be taken within individual firms to provide elementary instruction on handling and maintenance for the men concerned. Plant replacement in building is necessarily high, but that is no reason why common sense should not be used to minimise it as much as possible.

**I**N 1883 Arthur Frederick Dandridge joined William Jones, the founder of William Jones, Ltd., the well-known railway material manufacturers and contractors' plant specialists. Dandridge was then 19 and he became Messrs. Jones' chief clerk, a title more common in those days than now and one which placed within his sphere of responsibilities the control of three large stores at Laurence Pountney Hill, Rotherhithe, and at High Street, Deptford.

Twenty-seven years later, in 1910, Dandridge commenced trading on his own account at 11 Bush Lane, Cannon Street, E.C., and two years later he removed his office to his depot at 86 Norman Road, Greenwich. Thus the name Dandridge of Greenwich came into being and started its intimate association with the contractors' plant world.

This family firm is a thriving undertaking and Mr. L. A. Dandridge, the present managing director, who has kindly supplied me with these details, is justly proud of his family's association with a business which celebrates its golden jubilee this week. I take this opportunity to wish him and all his colleagues at Greenwich every success for the future.

**I**N somewhat the same vein I should like to offer my best wishes to Tony Burnham, the 18-year-old son of a Burgess Hill, Sussex, builder who is off to Barcelona shortly to represent Great Britain in an international junior brick-laying competition.

He tells me that he laid his first brick when he was 11 and ever since he has been giving his father a hand on his jobs.

I don't know what the prizes are in this competition, but with recent events in Rome in mind, another gold medal would help to cheer us all on our way during the forthcoming winter. Good luck, Tony!

## HOUSING PROGRESS

The number of permanent houses completed in Great Britain during July was 23,985 compared with 24,193 in July, 1959.

In the first seven months of 1960, 167,919 permanent houses were completed compared with 154,209 in the same period of 1959.



# SPADEADAM ROCKET RESEARCH BASE CONSTRUCTED

## But Future Still Undecided

SOMETIME during the next few weeks an official announcement is expected on the Government's future missile development programme. Meanwhile, speculation continues about the prospects for the multi-million pound Spadeadam Rocket Establishment which has been built in Cumberland for the purpose of the "Blue Streak," the British ballistic missile now abandoned by the Government as a military weapon.

The Establishment is situated on the Cumberland Fells, about 20 miles north-east of Carlisle, and covers approximately 10,000 acres. It comprises five main areas, three of which are test areas for the static testing of the complete missile, propulsion units, and of the rocket engine component parts respectively.

As a safety measure these areas are separated by distances of up to 1½ miles. This dispersion has required the construc-

tion of six miles of road connecting the "Areas" on the Establishment.

The Missile Test Area comprises two missile test stands each with a traversing servicing tower on which the missiles are statically tested including the firing of the propulsion units.

By means of the gantry incorporated in the servicing tower, the missile is erected into the vertical firing position on the massive concrete emplacement situated at the end of a 300ft. concrete causeway. Built into the emplacement is a steel flame deflector weighing nearly 70 tons for deflecting to the horizontal plane the jets of the rocket motors.

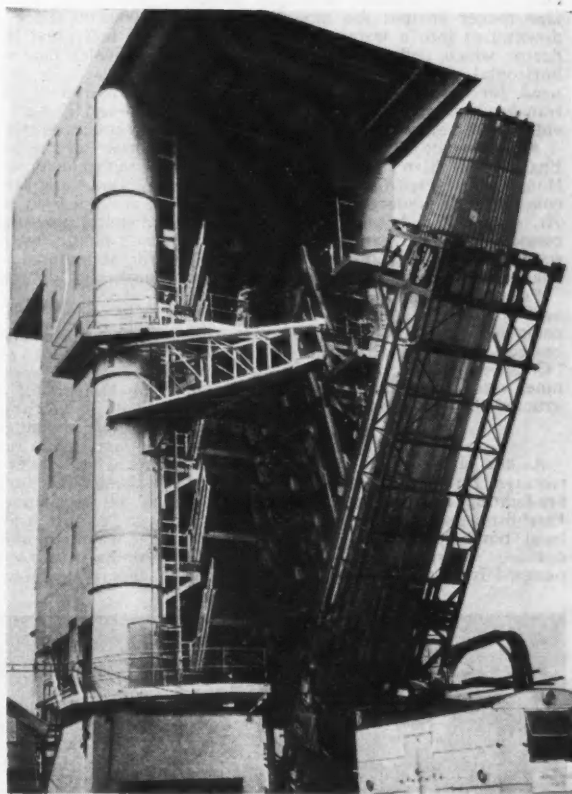
The large quantity of water required to maintain the temperature of the deflectors at a safe temperature level is pumped to the test stands via 36in. diameter pipe-

lines supplied from a 1,000,000 gallon reservoir situated adjacent to the Missile Test Area.

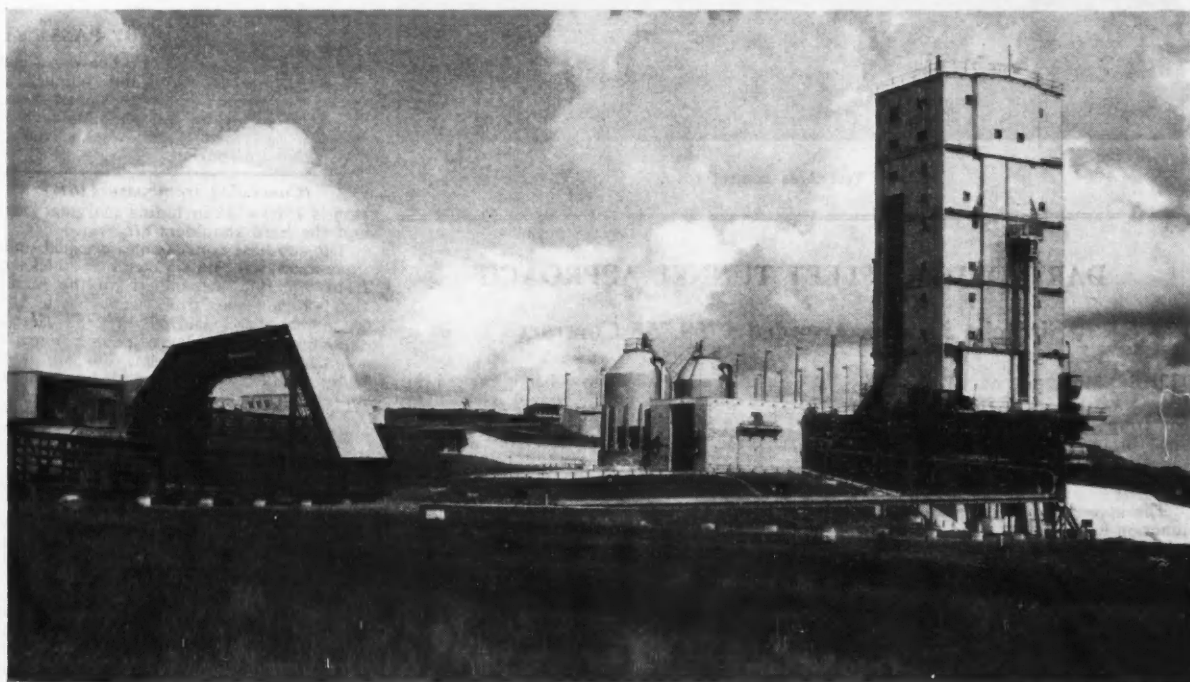
Tests are instrumented and controlled remotely from a reinforced concrete central block house situated approximately 1,000ft. from the test stands.

### Engine Test Area

This area, in which the individual propulsion units are test fired, consists of four engine test stands spaced 250ft. apart. Each stand consists of a massive concrete and



Rocket being installed on test stand



Missile service tower

steel structure in which the liquid propellant rocket engines are mounted to fire downwards into a water-cooled flame deflector which deflects the flame into the horizontal plane. The quantity of water used for cooling, storage facilities and transfer systems is similar to that provided in the Missile Test Area.

At a distance of 600ft. from the nearest Engine Test Stand is the Control Block House constructed of 2ft. thick reinforced concrete. An underground concrete duct, 7ft. square and 1,100ft. in length, interconnects the test stands with the control room for the routing of approximately 8,000 instrumentation and control cables.

Prior to the testing of the rocket engine as a complete unit, the sub-assemblies of component parts of the engine are calibrated and tested separately in the "Component Test Area." It comprises nine individual concrete test cells constructed around a central block house.

#### Water Supply

As the large quantity of process water required for cooling and as storage for fire-fighting requirements throughout the Establishment could not be met from the local boreholes, which are sufficient for domestic purposes only, supplies are pumped from the River Irthing via three

miles of pipelines to two centrally located 1,000,000 gallon storage tanks, from which the individual test area storage reservoirs are replenished and the fire mains supplied.

Great care has to be exercised in the prevention of any contamination of the soil and rivers in the area; to ensure this the process water in the test areas and from certain of the process laboratories in the Establishment is contained in concrete spillways and lagoons, or in special tanks, whence it is passed through comprehensive chemical treatment plants and, as in the case of the test areas, returned to storage for subsequent re-use. A sewage plant deals with domestic sewage.

#### Design and Planning

The construction of Spadeadam Rocket Establishment was undertaken by the Ministry of Works acting as the agents for the Ministry of Aviation who determined what the main principles and major test facilities should be, stipulating the number of test stands required and the extent of the safety circles appropriate to each type.

Under this broad directive the Ministry of Works planned the site so that those test facilities having the maximum use and the maximum number of workers would be the most easily accessible; but the presence of suitable load-bearing ground, on

which the heavy test stands could be located, had also to be taken into account.

In addition, the areas selected for the separate test facilities, extending to the limits of their danger circles, had to be such that the use of one facility would not interfere with the use of others. Moreover, the constructional programme for both civil works and engineering equipment had to be purposely framed to produce the test facilities in the sequence needed by the occupying organisations.

All these various aspects had to be achieved with the over-riding factor in mind that the work was to be done as inexpensively as possible, particularly in regard to road costs.

Preliminary site plans were agreed on during detailed discussions between the two Ministries and the organisations concerned. Subsequently, a basic programme was prepared which offered the various facilities in the sequence and at the dates fitting in with the main Blue Streak programme.

The nature of the project dictated the need for contracting on a prime cost basis and the successful tenderer, as reported previously in *The Contract Journal*, was a consortium (later a company) of British Oxygen, Ltd., and George Wimpey and Co., Ltd.

Subject to security clearance, it is proposed to describe the construction of the Spadeadam scheme in our next issue.

### SURFACE WATER RESOURCES

#### One-day Conference at Leeds

A whole-day conference on "Surface Water Resources and the Drought of 1959," sponsored by the Northern section of the Institution of Water Engineers, is to be held at the Leeds City Art Gallery, The Headrow, Leeds, on Friday, October 21.

The speakers will be Mr. Frank Law, chairman, Northern section; Mr. J. S. Burgess, Hydraulics Research Station; and Dr. R. G. Allen, director, Water Research Association. The chair will be taken by Mr. N. A. F. Rowntree, vice-president of the Institution and director of the Hydrological Research Group.

The conference is open to non-members of the Institution and further details may be obtained from The Secretary, Institution of Water Engineers, Parliament Mansions, Abbey Orchard Street, London, S.W.1.

#### MAIDENHEAD BY-PASS

Anglian Products, Ltd., Lenwade, near Norwich, manufactured and supplied all the prestressed and post-tensioned beams for both contracts on the Maidenhead By-pass, described in last week's issue of *The Contract Journal*.

(Concluded from page 1161)

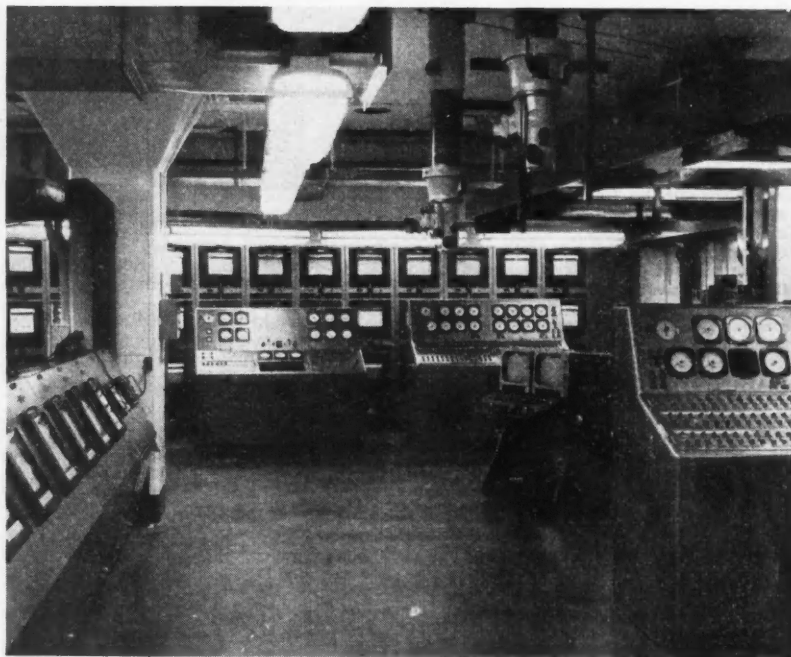
tion is 15ft. wide including marginal kerbs and the hard shoulders 8ft. wide.

The sub-base consists of a crushed stone (maximum size 3in.) varying in thickness from 0in.-10in. dependent on the formation which varies from rock cuts to fills.

On this is laid, by Barber-Greene spreaders, two 4in. layers of lean concrete with 3 per cent. cement, the top layer being sprayed with a bitumen emulsion for curing purposes.

The blacktop consists of a 3in. thick base course of 1½in. nominal size bitumen macadam and a final running surface of 1½in. of hot rolled asphalt.

For this contract the county surveyor of Herefordshire, Mr. D. H. Banks, M.B.E., T.D., B.Sc., M.I.C.E., acted as agent authority to the Ministry of Transport. The resident engineer was Mr. L. S. Dodd, B.Sc., M.I.C.E., the consulting engineers for Bridstow, Homs Road and Brampton's Abbots Bridges and for flood arches and road works across the Wye Floor Plain were Scott and Wilson, Kirkpatrick and Partners, and consulting architects for the bridges, Ansell and Bailey, contractors were Tarmac Civil Engineering, Ltd.



Engine Test Area control room

## DARTFORD-PURFLEET TUNNEL APPROACH

### Sir John Jackson Awarded £758,755 Contract

THE Minister of Transport has awarded a £758,755 contract to Sir John Jackson, Ltd., London, S.W.1, for the construction of the southern approach road to the Dartford-Purfleet Tunnel.

The approach road starts at a two-level junction with Princes Road, Dartford (A.2), with underpasses and slip roads to eliminate cross-traffic. From this junction, the road will curve northward to the tunnel entrance. It will pass under Watling Street (A.296) and London Road (A.226) and over the North Kent lines of British Railways. Earthworks include about 330,000 cu. yd. of open excavations and the construction of floodbanks, etc.

As officially announced elsewhere in this

issue, tenders are now being invited for the completion of the tunnel itself. This contract will entail:

Furnishing the tunnel (about 1,560yd. long) with a concrete lining and a reinforced concrete road-deck with paving and footways; finishing the wall with mosaic tiles, and providing a suspended ceiling; construction of two ventilation buildings and shafts; installation of equipment for electrical distribution, pumping, lighting and other services; paving and completion of the open cut approaches to the tunnel, each about 210yd. long.

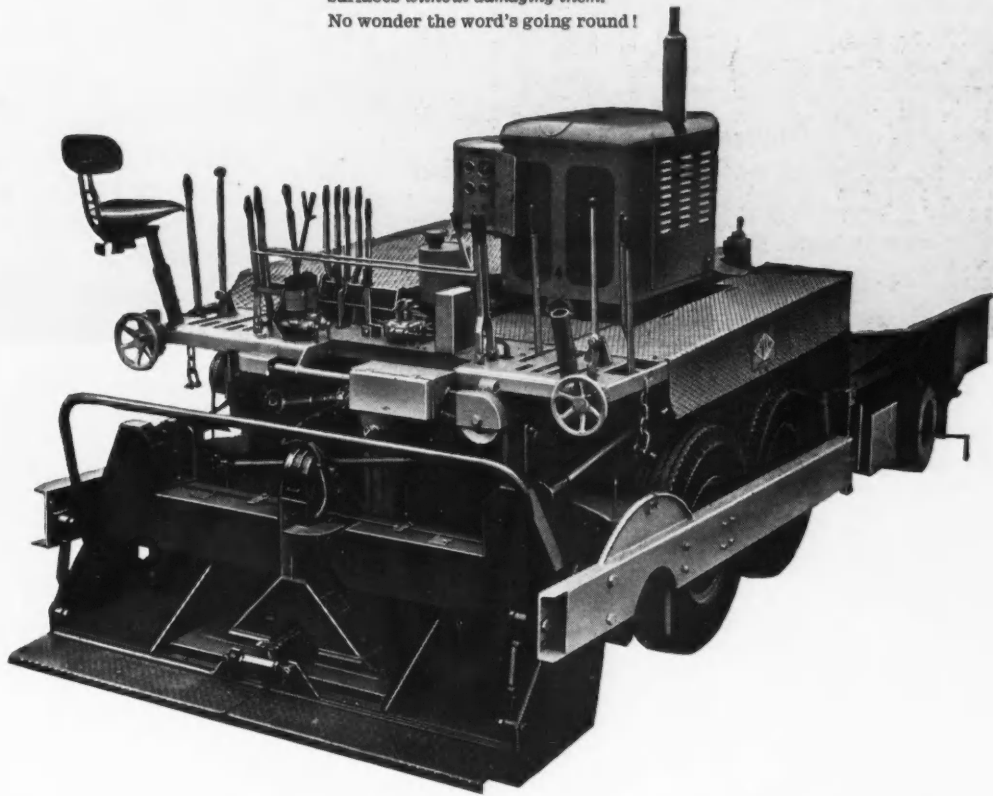
The schemes as a whole, including the approaches, will cost more than £11m. and is expected to be completed in 1962. The consulting engineers are Mott, Hay and Anderson, Westminster, S.W.1.

## The paver they're all talking about

It's the PF-90, of course. No machine can touch it for sheer paving speed and accuracy. On motorway surfacing for instance, a recorded laying speed of 484 feet in 22 minutes was maintained. At the moment, PF-90's are busily at work on five big by-pass projects, and in Italy, seven are speeding completion of the Autostrada del Sole which will run 459 miles from Milan to Naples.

The PF-90 lays any width from 8 ft. to 16 ft.—without cut-off shoes, and up to 12" deep, handles all pre-mixed coated materials, and granular bases of crusher run or plant mixed stone—as well as lean-mix concrete. The pneumatic tyres absorb vibration, enable the PF-90 to traverse new surfaces *without damaging them*.

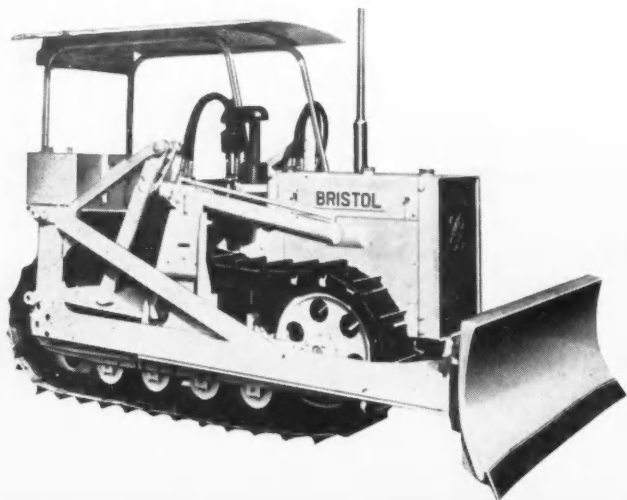
No wonder the word's going round!



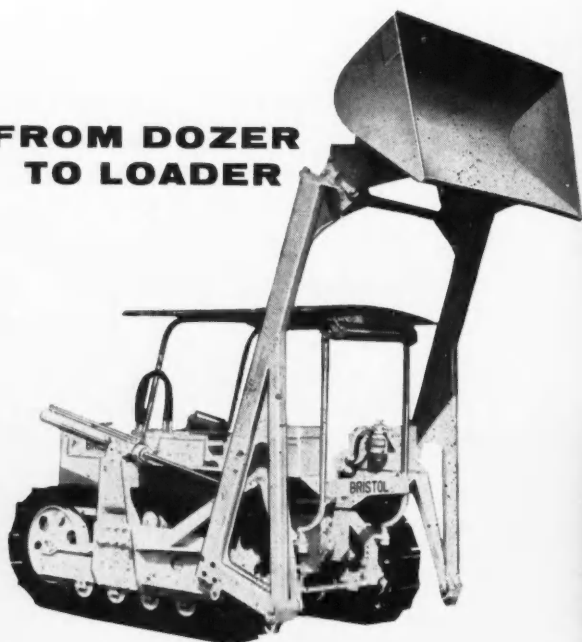
# BLAW KNOX

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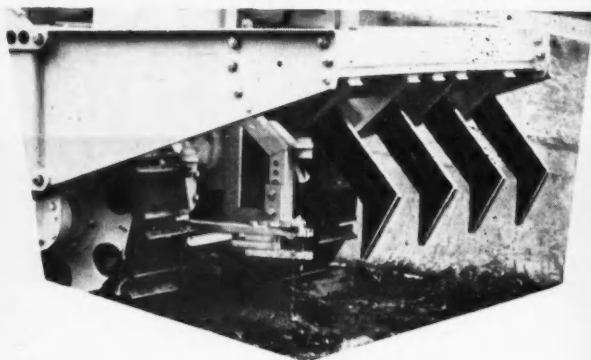




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**FROM LOADER  
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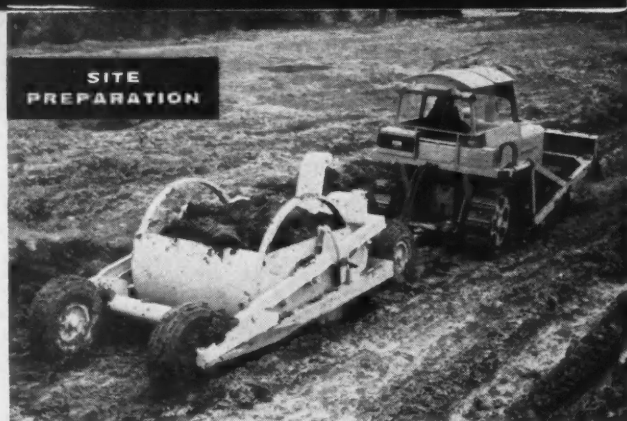
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CLEARANCE**

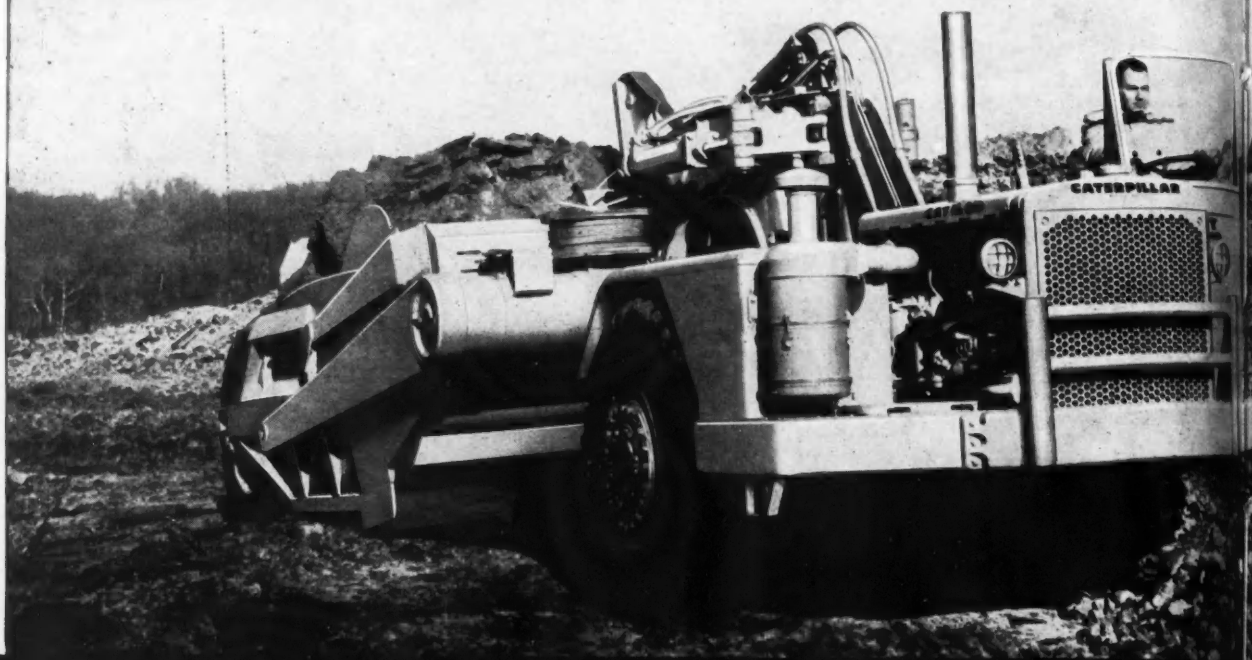
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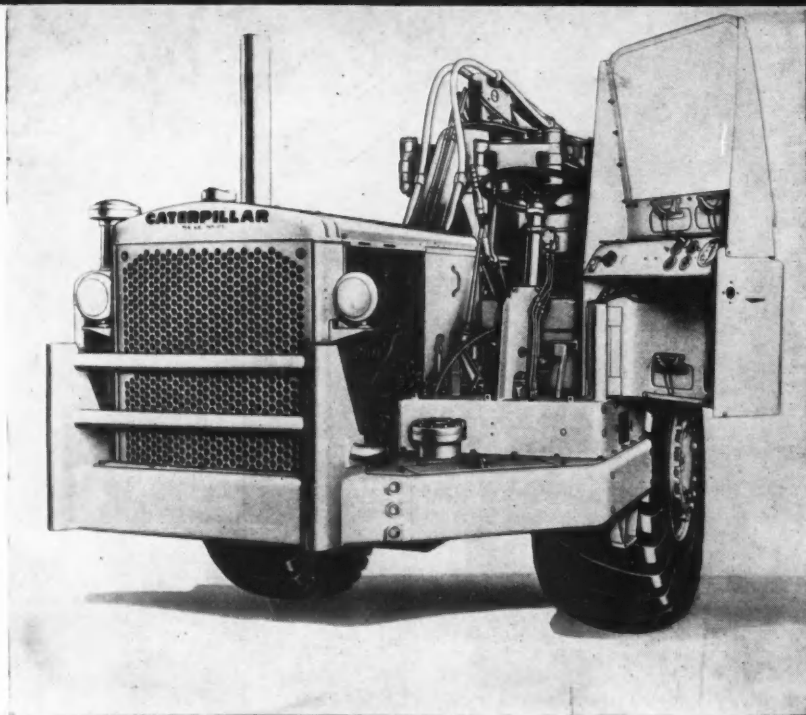
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Low loading height for ease of charging under mixer or by hand.

There is no spillage loading the improved RoadMac dumpers.

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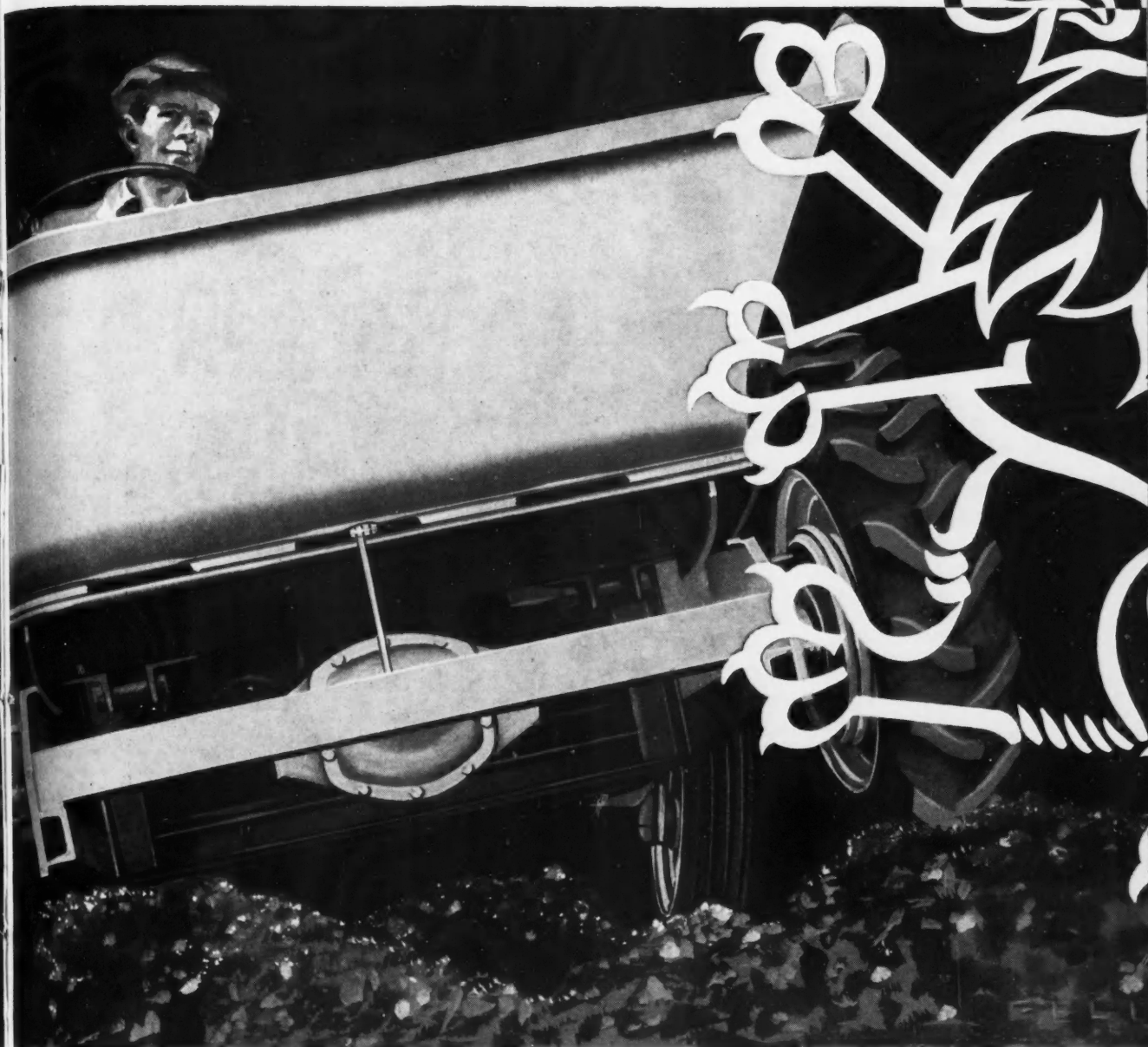
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CP/231

# STATICS CAN COME ALIVE IN THE HANDS OF AN ENGINEER

By Sir Alfred Pugsley, O.B.E., F.R.S.\*

**T**EXTBOOKS on statics, even when intended for schoolboys, still seem to retain something of that air of formality and detachment associated with Victorian works on geometry. Forces are very disembodied and act either on infinitely small particles or on strictly rigid bodies. And this climate, I fear, still reflects, and is reflected in, the teaching of statics in schools.

There may be a certain cold grace about such a formalisation of statics, but it smacks of death rather than life. In the real world, all bodies are finite and deformable, and even breakable; and they are not just "bodies" subject to forces of undefined nature, but are bridges, skyscrapers, ships and aeroplanes carrying real loads due to people and vehicles and goods, and having to withstand wind and wave and earthquake. In such an atmosphere, the practical one of the engineer, statics takes on a new interest and a new life.

It is in the belief that too seldom are statics given a chance to show not only its grace, but its practical liveliness and power, that I have chosen the subject of my address.

## Frameworks

Most sixth form schoolboys with a scientific bias, and all engineers, gain some familiarity with the way in which a frame, such as a roof truss or bridge girder of lattice type, is analysed for design purposes. The frame is treated as a structure with all its members in one plane and the joints where the members intersect are imagined to be smoothly pinned. The forces acting on the frame, whether due to gravity or wind, are then estimated and treated as concentrated at the joints. For the set of external forces so determined it is then easy, though somewhat lengthy, to calculate the internal forces—the pushes and pulls—in all the members of the frame. If the structure is to withstand the external forces, each joint must be in equilibrium; thus the forces acting at a joint—the external ones and the internal actions in the members intersecting there—can be calculated graphically or analytically by the application of the classical "polygon of forces" rule of statics.

This approach to the design of a plane frame, which started in this country early last century, has since been developed into systematic graphical and analytical processes that are still widely used in design today. But there were within it two snags that have over the years caused heart searchings among engineers and drawn occasional contributions from mathematicians. Both relate to the arrangement of the members in the structure, though in different ways.

If we examine an ordinary railway bridge truss, we will find commonly that the members are arranged in a repeated pattern leaving open triangular spaces. Thus the top and bottom booms of the truss may be parallel and the members joining them be alternatively vertical and inclined, to form what is called an N truss. This sort of construction, if truly pin-jointed, leads to what is known as a just-stiff frame; that is, if you take any one member away, the frame loses its stiffness and becomes a

mechanism with one degree of freedom and so will collapse under any external loading tending to excite such motion. On the other hand, if you add a member, as for example a supplementary diagonal member, the structure remains stiff, but what now happens is that one can no longer analyse it by the principles of classical statics alone. The condition that all the joints must be individually in equilibrium gives insufficient equations for the calculation of the internal loads in all the members. The structure is then said to have a "redundant" member; and some practical structures have many such.

There is another form of redundancy common among frames: that due to external constraint. If we return to our railway bridge, we shall commonly find—at least in the older bridges—that one end of the truss is supported by a heavy pinned joint, while the other rests on rollers to allow, for example, freedom for thermal expansion longitudinally. This arrangement, however, has other effects. At the pin, if smooth, the support reaction can have two components, as vertical and horizontal; at the rollers, if frictionless, only one reaction (vertical) is possible. Thus when we come to consider the equilibrium of the truss as a whole, we have three unknown reactions to determine; for this, we have the three equations of equilibrium, corresponding to the balance of forces in the vertical and horizontal directions and of moments in the plane of the truss. But had we pinned both ends of the truss we should have had more unknowns than we could determine in this way by classical statics; we should have had a redundant reaction.

The calculation of such redundant actions, whether internal or at the supports, has been a problem and a battleground for engineers over the past 100 years. If we assume that we want to study the structure under elastic conditions, that is, loading conditions such that all the members remain elastic and return to their original configuration on removal of the loading, then the problem is one essentially of arguing that not only is every joint in equilibrium but that the forces in its members produce extensions and shortenings therein that are themselves consistent with the continuity of the frame as a whole and with its supports. Indeed, as was first pointed out by Clebsch in his famous book on elasticity in 1862, the whole problem can be transformed by regarding it not as one directed towards the solution of unknown forces, but as one seeking the component displacements of the joints. In these terms there are always as many equations available as there are unknowns.

Over the last century there have been in the early theory of frames two snags to worry engineers, one is the question of redundancies; the other is the question of how best to arrange the members from an economy standpoint. When designing a frame we have, in general, to transmit a load or system of loads from given points to given supports, and one would like to know how to do this with economy of material. We can see the immediate response of engineers to this problem in the variety of frame arrangements used for almost the same job: the many different forms of roof trusses and bridge trusses developed last century all point to practical efforts towards the solution of this "best frame" problem. A guiding factor has been the idea that compression members, naturally liable to bow, should be kept as short as possible, and that tension members, free from this trouble and for which specially high strength materials

(like wire) are available, should be the longer and more numerous. A succession of practical rules have been invented to aid economical design here; perhaps the best known last century was the rule that said economy in a girder was achieved by ensuring that, at the finish, the weight of its upper and lower booms was closely the same as the weight of its web members (the verticals and diagonals in an N truss). In this century, designers are well aware that a bridge girder excessively deep or excessively shallow will be uneconomic. Only in recent years has a more scientific return to this problem appeared. In 1958, H. L. Cox noticed that a theorem of Michell, based on an earlier one by Clerk Maxwell, could be used constructively to provide, for a given load and support system, a "best frame" arrangement. This at least is the theoretical position, though the actual process is difficult and has only been worked out in a few cases. The results look strange to the framework designer, at least until he remembers his predisposition to tension members rather than compression members. It seems, in the long run, as if the spider is the ideal frame designer; he uses the supports and the structure behind them (the branches of the bush) to provide his compression needs, and builds his web-frame with "fans" of tension members. But the method so far developed on these lines lacks provision for other practical factors; in general, for example, we have not only a given set of loads and supports, but are restricted to a given space within which to construct our structure.

I have so far been discussing the statics of frames as though frames were restricted to plane frames; whereas space frames are sometimes used and present all the problems of frameworks *par excellence*. By a space frame I do not mean here the kind of frame in three dimensions that is constructed by an assembly of plane frames, as in the triangular framework of a radio mast or the rectangular frame of a tall building. I mean the sort of frame that is conceived as a space structure from the start and so unlikely to have more than a few of its members in any one plane. We have few examples of such structures in this country; some domes on the Continent are proper space frames, but the best examples occurred in airship structures in Germany, England and the U.S.A. in the 1920's and 1930's. In the course of this development the engineers concerned realised how little classical statics had done for them in this ambitious field, and strove, with the help of mathematicians and geometers, to advance the theory of space frames to cope with the new practical needs. Old theorems relating to the adequacy or redundancy of plane frames had to be replaced by new ones—even now less comprehensive than one would like—for space frames. Southwell, with his flair for intriguing titles, produced new processes such as "The Device of the Separate Panel"—little known today—and his much more general "Relaxation" methods in the course of this work. And Roxbee Cox charmed us with his excursion into the nature of just-stiff space frames—still unsurpassed or substantially extended—"On the synthesis and analysis of simply-stiff frameworks" (1936).

Here we are at the frontiers of our knowledge of frames. No new wave of interest has arisen of sufficient intensity to push much further ahead. And at the back of the problem is the rarity of finding anyone among engineers or math-

\*Extracts from an address, "Statics and the Engineer," presented at the annual meeting of the British Association for the Advancement of Science, held recently at Cardiff. Sir Alfred is Professor of Civil Engineering, University of Bristol.

maticians who thinks natural and constructively in three dimensions. Much was done in Germany at the end of the last century; England and America had an airship heyday; a new generation must take the next steps. Until that happens we seem doomed to see "plane frame" structures all about us, when many of us feel sure that structurally and aesthetically better things could be achieved.

#### Suspension Bridges

Bridge designers are all looking forward to the completion of the first great suspension bridge in this country—that over the Forth—and hoping with South Wales and Bristol, to see the start of one over the Severn. To them, and I suspect to many schoolboys in the next generation, the large suspension bridge presents a challenge that, given the opportunity, few could resist. If statics can do any good in the world, here is something it can do with pride.

The theory of the suspension chain and cable, whether viewed as a parabola or as a catenary, is something that has intrigued engineers and mathematicians for over 200 years. Most engineers, and many schoolboys, are able to discuss the mechanics of such a chain loaded only by its own weight, or by some uniformly distributed loading hung upon it. But one has only to try to determine the behaviour of such a cable under a single concentrated load to realise the real difficulties of the problem. Thus it has taken the sustained efforts of many able workers in this field to build up even an approximate theory of suspension bridges. And this has been paralleled over the last two centuries by the extension and improvement of the practice of construction.

Rankine, helped by the practice of Telford and Brunel and the model experiments of Barlow—all great names in English engineering history—produced (in 1858) the first scientific theory that made some allowance for the interaction of chain and stiffening girder appropriate to the spans (up to 200ft.) of his day. But his theory, and those that followed upon it, treated such bridges essentially as elastic structures, with the cables liable to stretch and the girders liable to bend. It took the physical intuition of the designer of Brooklyn Bridge—Roebling—to realise that the weight of the bridge itself (in most bridges a nuisance) was a "good thing" that could in the limit (with large spans) do all the stiffening that was required.

The great George Washington Bridge, with its eight lines of traffic over a 3,500ft. span, but without any stiffening girders, has for long stood as a monument to the theory that was developed out of Roebling's hunch. Here was a piece of statics that bridge engineers had forgotten about: you load a bridge at any one point, the structure "gives" a little and the load moves downwards and so loses potential energy. In most structures, this energy is stored in the structure as "strain energy"—energy in elastic form associated with stretchings, shortenings and bendings of members of the structure—that will cause the structure to spring back to its original geometry when the load is removed. But in suspension bridges (and in small unnoticed degree in some other structures) the relative inextensibility of the cables commonly forces the structure, when loaded and deflected downwards at one point, to rise at many other points. So the structure itself, instead of slightly losing potential energy by the downward movement, actually gains potential energy; and with heavy long span bridges this gain may be substantial. Thus if you pull downwards on a suspension bridge much of the resistance is not elastic in the usual way, but is really due to gravity. This was, until quite recently, only appreciated by the few designers of the latest large bridges.

We thus have, added to the problems of the irregularly loaded catenary, the wider problems of the action of a stiffening girder and the partition of energy between the elastic and gravity potential forms: a non-

linear problem in statics still worthy of engineering scientists and still calling for further improvement.

#### Tubes and Shells

All engineers have at some time or another been interested, at least mildly, in some problem of elastic stability. Last century, with the coming of metal construction, few could refrain from having views on the column or strut problem: on how to predict, or provide against, instability in compression. In the first half of this century, in somewhat the same way and at least from aeronautical contacts during the wars, many engineers have become aware of the buckling problems of thin plates in compression or shear. These are all essentially, whether the material is elastic or not, problems of static stability.

In the early days of higher technical education, the Central Technical College at Finsbury, with a staff including Silvanus P. Thomson and John Perry, was of high repute and became, indeed, the forerunner of Imperial College, London. The textbooks prepared by the staff at Finsbury were, for their time, of high standard and widely used. In one of the best known of these books, Perry's *Applied Mechanics* (1897), there is a short section dealing with the problem of the tubular strut, in which the advantages to be gained by "inflating" such tubes are emphasised.

With this in mind, let us turn and look first at the problem of the thin tube (unpressurised) in compression. In the First World War such tubes became common in aeroplane structures, and this, together with advances in methods of manufacturing these tubes—drawing, extruding, rolling and welding—led to great interest in predicting and preventing premature local buckling of the walls of such tubes when in compression. There is clearly a great advantage with such struts in using, for a given length of column, as large a diameter as possible to prevent general bowing; but when this is done, for a given cross-sectional area of metal, the tube walls may become so thin as to precipitate local buckling and crumpling in the manner of an open-ended paper tube.

In 1914, Southwell investigated the theory of local buckling of this kind, examining the stability of the walls by considering the effect of a generalised small elastic sinusoidal deformation of the walls. His result, as was shown by parallel experimental work by Andrew Robertson, was of the right general form, though in practice buckling occurred at roughly one-third of the theoretical critical value. The difficulty of making at that time thin enough tubes adequately to check this theory (a wall thickness preferably less, than 1/100th of the diameter was required), together with previous experience of the effects of initial irregularities on solid strut behaviour, gave rise to the idea that this major numerical difference between theory and experiment arose from the inevitable departures in a real tube from true cylindrical form. And so the matter stood until fairly recently.

During the last war, however, when aeroplanes no longer used circular tubes so much as curved metal plates in compression, the same sort of discrepancies between test and theory again arose repeatedly, and Von Kármán in the U.S.A., and Leggett here, opened up a new approach. They argued that, although initial irregularities might be partly responsible, the main cause might be found in the inadequacies of the linear theory used by Southwell for what might be essentially a non-linear problem.

It had long been observed, for instance, that the walls of thin tubes, when buckling, moved inwards more than outwards, yet the linear theory gave no account of this, and indeed assumed equal amplitudes in both directions. With difficulty, but with considerable success, they showed that a non-linear theory, treating the amplitudes as appreciable compared with the wall thickness, not only accounted for the predilection to inward buckling but also at

least partially accounted for the lower critical load found experimentally.

Since the last war, and particularly during the last few years, the art of constructing large guided and ballistic missiles has advanced this problem further. These missiles have as their principal structure, very thin tubes of large diameter; and these tubes, from the inertia of the missile warheads and the thrust of their jets, are primarily in compression. Moreover, under the military pressure upon industry in this field, ways have been found of making such tubes with walls not of 1/100th of the tube diameter, but of 1/500th or less. In these circumstances, the old problem of the static stability of a thin tube in compression came to a head in a vital way.

Now years ago, Perry, in the textbook to which I have referred, advocated the use of internal pressure in tubular columns, attributing the original idea to Prof. Maurice Fitzgerald of Belfast. Perry once argued, I believe, that the large columns that support the present Charing Cross railway bridge over the Thames would have been better filled with air than the concrete and brickwork actually used! Unbeknown to most missile designers, the same idea was revived by B. N. Wallis in a proposal for a single-span arch across the Thames (instead of the present reinforced concrete Waterloo Bridge). He proposed to make the main members of his arch of tubes filled with air under pressure, this being done partly to postpone buckling and partly to control the overall deflections of the bridge under load. Some tests on tubes so pressurised were at the time carried out under Professor Redshaw at Birmingham, but the internal pressure, beyond putting the closed tube into initial tension that had first to be overcome by the applied compression, appeared to do little to prevent local buckling.

Meanwhile, missile designers, ignorant of this experience, have gone ahead and pressurised their much thinner tubes; and by *ad hoc* tests have shown that pressurisation, in their case to the order of one-half an atmosphere, has not only provided initial tension but successfully postponed local buckling. Research into these practical results, using missile tubes in a systematic series of experiments, has in the last few years, in the U.S.A. and at Bristol, supported this experience and gone far to show the reasons.

When you pressurise a thin tubular column before loading it in compression, the first thing that happens is that initial irregularities of form (not of wall thickness) are largely smoothed out; and this no doubt helps. But the other, and more potent, thing that happens, is that the fluid inside resists inward movement and so opposes any tendency for the walls to buckle inwards rather than outwards. As a result the mode of buckling, ordinarily a chequer-board or "square diamond" pattern, changes until with high pressure the vertical diagonal of the diamond has become so shortened relative to the circumferential diagonal that the deformation becomes not diamond-wise, but circumferential corrugation-wise, with the bulk of the deformation outwards (and so necessarily plastic rather than elastic). And the critical buckling load thus becomes substantially greater than for the unpressurised case. With such very thin tubes the engineer's "hunch," rather than his theory, was right.

In the field of tubes and shells, if we restrict attention to stability problems rather than strength ones, perhaps the most intriguing today is the problem of the deep-diving submarine shell. Here is a shell-like structure not under internal pressure and longitudinal compression, but primarily under heavy external hydrostatic pressure seeking to crush it and its contents. So long as submarines were thought of as surface vessels able, on occasion, to hide by diving below to a depth of 100ft. or so, the problem of making the hull structure withstand the hydrostatic pressure was not very difficult. It

(Concluded on page 1168)



## SLIDE CONSTRUCTION USED ON £4M. CLYDE GRANARY

### 138 Bins Completed in Six Months

**A**N extensive new granary built at Meadowside, Glasgow, for the Clyde Navigation Trust, and costing in the region of £4m., was opened recently by the Minister of State, Scottish Office, Lord Craigton. With a capacity of 50,400 tons of grain, the structure more than doubles the present storage capacity of the Trust's existing granary alongside which it has been built.

Although a single structure, the new building consists of three main parts, two working houses at the extremities and the centre silo section containing the storage bins. The overall length is 387ft., of which the silo section occupies 315ft.

The two nine-storey working houses are 36ft. by 97ft. by 187ft. high and house the main items of plant. Access to each is provided by means of a staircase and electrically operated lift, a machinery hoist also being available for plant maintenance and replacement. The ground, first, second and eighth floors are continuous throughout the full length of the building.

The main section of the building between the working houses is 90ft. wide and 159ft. high, comprising 114 bins each of 400 tons capacity, 15ft. square by 97ft. deep and 24 bins each of 200 tons capacity, 15ft. by 7ft. 6in. and of the same depth. The smaller bins are situated 12 at each end adjacent to the working houses. All bins rise from the third floor to the eighth floor.

Workshops, offices, messing facilities

and main control room are situated in an amenities block approximately 135ft. long by 12ft. wide cantilevered from the first and second floors to the south of the silo section.

The foundation of the building consists of a reinforced concrete raft 4ft. thick resting upon boulder clay. The framework



Concrete placing in progress

of the building is constructed in reinforced concrete throughout with a straightforward design of columns, beams and floor slabs.

Bin walls are also constructed in reinforced concrete. The walls of the working houses are of cavity construction with either facing bricks or precast granite-faced slabs on the exterior faces. The external bin walls are covered with facing bricks to give the building a uniform appearance and also to provide additional protection for the reinforcement in the bin walls.

An interesting feature of the construction is the formation of the 138 storage bins which are erected in six separate groups or sections using the system of sliding formwork. The timber sliding shutters for each section were set up to the plan shape of the group of bin walls, a working deck fixed to the top of the shutters and this assembly jacked up vertically on 1in. diameter high tensile steel rods by means of hydraulic jacks with simultaneous fixing of the steel reinforcement and feeding into the shutters of the wet concrete from the working deck as the shutters were raised by the jacks. The timing of the whole process was such that the concrete had set sufficiently to be self-supporting by the time it emerged from the lower end of the 4ft. deep shutters.

Once a slide had commenced the work proceeded continuously on a 24 hours a day basis until it was completed; the average time taken to slide each section was seven days. No two adjoining sections were slid successively and the time between the completion of one section and start of the next was about 3½ weeks, the whole of the bin construction being completed by this method in less than six months as against about 18 months if the normal "hand over hand" shuttering method had been adopted.

To form the concrete frame and walls of the building 25,000 tons of crushed whinstone, 16,000 tons of sand, 7,000 tons of cement and 2,400 tons of steel reinforcing rods were used and to provide the cladding about 1,000,000 bricks, 12,000 facing slabs and 25,000 sq. ft. of glazing were required.

The granary was designed by L. G. Mouchel and Partners, South Bank House, Black Prince Road, London, S.E.11, and the whole of the building and civil engineering work was carried out under the direction of Mr. Archd. Thomson, B.Sc., M.I.C.E., engineer to the Clyde Navigation Trust, assisted by Mr. R. Barclay Braithwaite, A.M.I.C.E., assistant engineer. The main contractors were Holst and Co., Ltd., 46 Clarendon Road, Watford, Herts.

### £1½M. BRISTOL WATER SCHEME

Work is expected to begin early next year on a scheme to obtain water supply from the River Severn, the River Cam and the River Frome, for the Bristol Waterworks Company, at an estimated cost of £1½m.

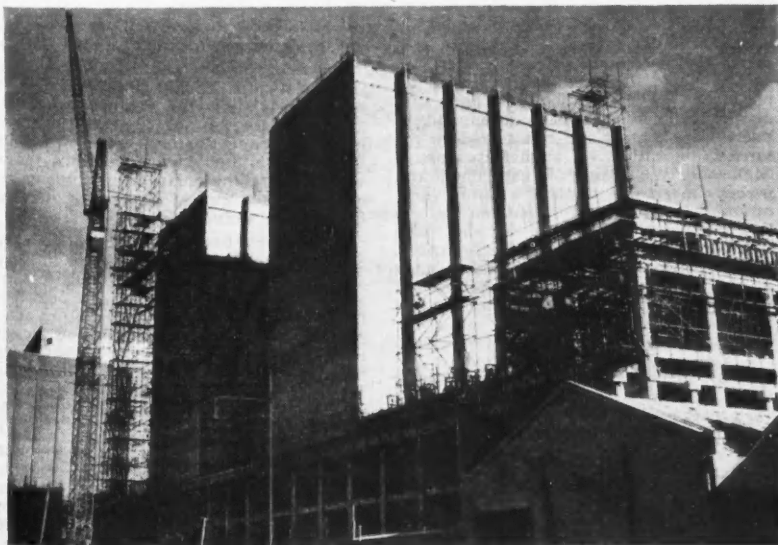
To be known as the Sharpness scheme, the project provides for the abstraction of 18,000,000 gallons a day, to be developed to 25,000,000 gallons a day as and when required, and involves the construction of a 117-mile long trunk main from the Sharpness Canal in the Purton area to the Severnside works of Imperial Chemical Industries. Another main will run from the Littleton area to a new purification works. The scheme is expected to take three or four years to complete.

### WINDSOR RELIEF ROAD PLAN REJECTED

The suggested route for a new Windsor-Eton relief road on the Berkshire side of the Thames has been rejected by the Minister of Transport because it would mean the demolition of too much private property and would go through a residential part of Windsor.

The Minister suggests in his decision that Berkshire C.C. should submit a new scheme which would take the road about a quarter of a mile west of their original proposal and mostly through open country.

The Devon Water Bill, which proposed the regrouping of water undertakings in the county under three boards has been rejected by a House of Commons Select Committee.



View of the granary during construction

## MINISTER WANTS CAMBRIDGE PLAN RECONSIDERED

### Decongestion of Central Area Objective

**MR. HENRY BROOKE**, Minister of Housing and Local Government, has asked Cambridge County Council to reconsider their £5m. plan for the redevelopment of Lion Yard, Cambridge, by the provision of a shopping precinct from which wheeled traffic would be excluded. Other main buildings proposed for the area were an underground car park and three 10-storey blocks—two for offices and the third as an hotel.

The inspector who held the public inquiry last year, accepted the argument that the area was ideal for the relocation of existing overcrowded uses and the improvement of traffic circulation. The proposals had to be considered against this background. His conclusions were:

- (1) that the submitted scheme was basically unsound in that it envisaged shop and office expansion instead of decongestion of the central area—where commercial expansion was neither necessary nor desirable;
- (2) that the accesses to the proposed car park were unsatisfactory and required modification which might alter the plan substantially;
- (3) that the submitted plan crowded too much development on the site;
- (4) that the boundaries of the proposed comprehensive development area could not be determined until the redevelopment proposals had been revised.

The proposals had been submitted as an integrated viable plan which in his opinion would not bear piecemeal alteration. He recommended therefore that the whole submission be not approved.

The letter giving the Minister's decision says that Mr. Brooke considered whether he could modify the scheme to preserve what was good rather than reject it entirely. He decided not to do so because any substantial changes would involve the council in rethinking the economic aspects of the scheme entirely afresh.

He acknowledged that there might be some doubt whether any redevelopment scheme for the area could both be an assured business success and, at the same time, be in the best interests of the plan-

ning of Cambridge as a whole. He felt sure, however, that the second of these two objectives must be the main one.

#### Main Objective

The letter continues: "In his view, the main objective in planning the area must be to reduce congestion or at least minimise the increase of congestion in the central areas as a whole. The road and car parking proposals are a part of the submitted scheme which he views with approval. He does not think more office space should be provided than is there now. If additional shopping space is proposed the Minister would wish to have some evidence that the total amount of shopping in the central area is not likely to be significantly increased as a result.

"The Minister therefore accepts his inspector's recommendation and has decided that he should not amend the development plan in the way proposed. If a scheme for the comprehensive redevelopment of the area can be formulated on the lines sketched out above the Minister would be prepared to give it favourable consideration; the exact boundaries must depend on the character and requirements of any revised scheme."

### NOTTS. POWER STATION SITE INQUIRY

Proposals by the Central Electricity Generating Board to build a power station, which would be the largest in Europe, in the Nottinghamshire green belt at Holme Pierrepont, is to be the subject of a public inquiry at Radcliffe-on-Trent on November 22.

Since the proposals were first made known there have been vigorous protests against them. The objectors say that the building would be an unwarrantable intrusion into the green belt around Nottingham as well as spoiling the surrounding countryside. The station, as planned, would cover 500 acres, with two chimneys 600ft. high and eight concrete cooling towers each 375ft. high.

their material should be permanent and elastic in favour of making it plastic, leading to the occurrence of creep under load and hence to the need for occasional replacement. The statics of this deep submarine problem has been attempted in many ways, but is still not solved to the satisfaction either of mathematicians or engineers. We await more experiment and perhaps the new outlook of a future generation. Meanwhile, I hope and believe that engineers will still go on and make successful submarines and bathyscaphes, while science, in this case statics, chases in the rear; a very proper position, on occasion, as between engineering and its background science.

#### Epilogue

It is common for engineering professors today to complain of the teaching of applied mathematics. Sixth-form schoolboys, when they arrive at a University, are often good at pure mathematics but poor or indifferent at its application. If this is true—and I think it is usually so—it may be due to the masters rather than the boys. How can a young teacher of mathematics, himself perhaps inspired mainly by its beauty of form, have had enough experience in

## TENDERING PROCEDURE

### Views of A.M.C.

**I**N their annual report to be presented at the annual meeting of the Association of Municipal Corporations at Eastbourne on September 20, the Council state that the Association were consulted by the Ministry of Housing and Local Government and by the Ministry of Transport on the question of the use of selective tendering in relation to housing and road works.

In 1955 the Council approved the view expressed by the General Purposes Committee that open tendering should be used as a normal practice, but that there might be a case for the use of selective tendering for specialist work or in particular circumstances. Following the letters received from the Government departments inquiries were made of a limited number of member corporations as to their practice; these inquiries showed that the normal procedure is, in fact, for open competitive tendering to be used in ordinary cases, but for selective tendering to be adopted where the work to be done is of a specialist nature or, in some cases, where there is a degree of urgency. The kind of work for which selective tendering is used includes specialist engineering jobs, the erection of multi-storey flats and civic buildings, and, in some places, schools and highway works.

The Ministries were informed that the view expressed by the Association in 1955 still held good, and that the use of selective tendering was essentially a matter on which local authorities must exercise judgment in the light of all relevant circumstances.

### SCOTTISH MUNICIPAL ENGINEERS' AUTUMN MEETING

The autumn meeting of the Scottish Branch of the Institution of Municipal Engineers will be held in Kirkcaldy on Friday and Saturday, October 28 and 29.

Papers to be presented at the meeting include: "The Forth Road Bridge," by Mr. J. A. K. Hamilton, resident engineer, South Queensferry, West Lothian; "Forth Road Bridge Remote Approach Roads," by Mr. John M. Low, deputy county surveyor, Cupar, Fife; "The Planning and Design of Modern Swimming Pools," by Mr. Peter Heatley, of Edinburgh.

A visit is being arranged for delegates to see Glenrothes New Town.

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was no more difficult than making the circular flue in a large boiler withstand the pressure of the water and steam round it—a stability problem that was studied by G. H. Bryan back in 1888. But now that submarines, nuclear powered, are thought of as living under water, and that at much greater depths, matters are more difficult. Should the structure be just like that of a conventional submarine, built as a tube with reinforcing rings at intervals? Or, in the extreme, should it be constructed as just one thick unreinforced shell in the manner of the cabin of Piccard's bathyscaphe?

We are here concerned not only with elastic stability, whether linear or non-linear, but also with such heavy internal pressure that danger may arise from the metal itself yielding and becoming non-linear in its response to compressive stress. In parts of such structures, however, plasticity might conceivably be an asset in some circumstances; Piccard, for example, after many trials and experiments, found that he could only make the windows of his spherical shell—built for submersion not to 100ft. or 1,000ft., but to 20,000ft. or more—safe by abandoning the idea that

its application to have felt its power and constructiveness in practical life?

But it is not at school alone that applied mathematics is taught indifferently. In most Universities the engineering undergraduates are exposed to the teaching of mathematicians mainly concerned with mathematical and science students, and in very few are the engineering students required to take applied mathematics in their final degree examinations.

One learns best, one does best, when caught emotionally by the matter in hand, and this, I think, goes for pupil, teacher, and engineer alike. And in my field it is the great structure, the sweep of an aeroplane wing, the placid beauty of an ancient bridge, the sleek pride of an ocean-going liner, the ethereal grace of a cathedral, that first catches the heart-strings of a youth and all unbeknown binds him apprentice for a lifetime.

To one caught in this way, statics can have not only the cold, if dead, beauty seen by a mathematician; it can come alive in the hands of an engineer and help to give birth in the future, as it has in the past, to new forms new structures of service to mankind.

## RESTRICTIVE TRADE PRACTICES

### Registrar on Effect of 1956 Act

**D**EVELOPMENTS under the United Kingdom's Restrictive Trade Practices Act was the subject of an address given recently in Washington to the Antitrust Section of the American Bar Association by the Registrar of Restrictive Trading Agreements.

The Registrar outlined the background to the passing of the Restrictive Trade Practices Act in 1956. The aftermath of the 1914-18 war and the depression of the '30's had both stimulated the growth of price agreements; and during the last war, government controls over prices and production and the tendency of government to deal with bodies representing entire industries, increased the number and scope of trade associations. After the war, it appeared that many industries contemplated the continuation of restrictive agreements as permanent and not emergency arrangements. Typically these agreements seemed protective measures against the severities of competition rather than instruments of exploitation. There was therefore not the "apprehension of economic slavery" that was said to exist in the United States before the Sherman Act; but there was unease about the effect of restrictive agreements on the economy, and a feeling that some or most of them should be ended.

#### Value of Publicity

The 1956 Act did not at once make illegal agreements about common prices and discounts, common lists of distributors, loyalty rebates, production quotas and the like. But it required particulars of them to be sent to the Registrar for inclusion in a register open to public inspection. The purpose of registration was both to provide information about the extent and nature of current restrictive agreements and to expose them to publicity which the government thought might in many cases cause either whole agreements or the more onerous restrictions in them to be abandoned. It did.

Further, all registered agreements had in turn to be considered by the Restrictive Practices Court, set up by the Act to decide whether each was contrary to the

public interest or not. The principles which the Court should follow in reaching its decisions were of course laid down in the Act. The main underlying principle is that there is a potential damage inherent in all restrictive agreements in that competition is suppressed to the degree provided for in each. Thus a restriction was to be held contrary to the public interest unless it produced positive benefits of a kind defined in the Act, and did so without inflicting more than compensating detriment.

#### Act's Effect to Date

Statistically, the effect of the Act so far could be summed up as follows: 2,300 agreements have been entered in the register—early this month (August, 1960), 1,030 agreements had come or were coming to an end either because the Court had found them contrary to the public interest, or because the parties abandoned them before they were referred to the Court; 63 cases before the Court had been concluded—52 had been undefended so that the restrictions were held contrary to the public interest; 11 had been defended and eight of them had been found contrary to the public interest. One had been wholly upheld, as had most of a second. One minor restriction alone of a third had been upheld. Of the 11 contested cases, eight had involved price fixing, and two had involved discriminatory trading. But most had failed to pass the Court's scrutiny because, when the facts had been carefully investigated, the Court had not been satisfied of the probability that the public got any substantial benefit from their operation or would lose any by their disappearance. In some cases, the Court also found that they caused substantial detriment.

The preparation of cases for the Court took from 18 months to three years, and there were at present 127 further cases in preparation. On past experience, few of them would get as far as a trial. There were also a large number of registered agreements whose fate might be expected to depend upon that of others now coming to trial. This interdependence partly explained why so many had already been abandoned.

The process of individual examination of agreements had not been a waste of time or money; it had shown that in some particular circumstances restrictive agreements—even price agreements—could be beneficial to the public.

#### Effect on Economy

Considering the effect of the Act on the U.K. economy, the Registrar quoted Judge Victor Hansen (then Assistant Attorney General concerned with antitrust matters): "Antitrust laws cannot compel competition: they only make it possible." The existence of a restrictive agreement was at least some evidence that the parties did not wish to compete. In the U.K., ending of some price agreements had been quickly marked by price reductions; in other cases there had been no immediate change. Some industries which had had price agreements within the Act now had "open-price agreements" involving only the circulation of information which were usually outside the Act. It remained to be seen whether some of these agreements were a useful contribution to industrialists' statistical information or a means of exerting pressure on potential competitors.

The ending of some restrictive agreements had also been followed by mergers—though this was not necessarily a matter of cause and effect. Industrialists considered that the Act had been a contributory factor to some mergers; not to others. In general, however, there was a long way to go on the merger road in most U.K. industries before monopoly was created. And in a small-unit economy, large-scale operation might by greater efficiency produce benefits for the consumer to offset any loss of competition.

#### A Case History

The Registrar concluded with a case history. A price agreement about a major electrical component was determined in April, 1959, before reference to the Court. The reasons given by a leader of the industry were excess manufacturing capacity and the Restrictive Trade Practices Act. Severe competition followed and prices were stated by several companies to have fallen below cost. There were mergers in the industry both before and after the ending of the agreement; but 11 firms remained in the business. Late in 1959, one firm raised its prices to restore about half the cuts it had made. This price leadership was followed by others, who also increased their prices.

## CUBITTS' OCTOBER START AT CITY CLEANSING DEPOT

**T**HE final contract to complete the Corporation of London's £14m. public cleansing depot and wharf is scheduled to start on October 17. As reported recently, the contractors are Holland & Hannen and Cubitts (Great Britain), Ltd.

Work on the project originally began in September, 1958. The £885,000 contract awarded to Cubitts includes the erection of an 82ft. high block of offices and flats for the Public Cleansing Department. The main section of the depot will have three floor levels and a basement, and will incorporate a road ramp for vehicles.

Design of the depot is based on the principle that all refuse will be handled behind dustproof doors under hygienic conditions for the operators. Refuse is mechanically consolidated and sealed before reaching the open air, thus ensuring that the surrounding area will be free from dust.

#### Steel-framed Building

The depot will be a steel-framed building encased in concrete; foundations and

steel frame are already completed. Floors will be of 10½in. in-situ concrete with brick partition walls and the external elevation will be in Crowborough facing bricks. Provision will be made for extensive mechanical services.

The administration block will also be steel-framed with 6in. hollow tile floors. External elevations will be in stone and Crowborough facing bricks.

The whole project, which is located in Upper Thames Street next to Cannon Street Station, has been planned and designed under the direction of the city engineer, Mr. Francis J. Forty, O.B.E., B.Sc., M.Inst.C.E., with advice on elevational treatment and planning of the administration block from Sir Hugh Casson, M.A., R.D.I. The electrical and mechanical work is to the design of Mr. H. A. Sandford, B.A.

The Board of Trade has approved the change of name of the Institute of Industrial Technicians to the Institute of Incorporated Work Study Technologists (Limited by guarantee).

## £4.5M. GLASGOW REDEVELOPMENT APPROVED

Glasgow Corporation housing committee have approved plans for the comprehensive redevelopment of a further large area of Pollokshaws costing £4.5m. They provide for the building of four 20-storey and seven 16-storey blocks in an area stretching from Kennishead Road in the south-west to Riverford Road in the north-east.

The development has been designed by Boswell, Mitchell and Johnston, of Glasgow. In May, the corporation approved plans for the first development designed by J. L. Gleave and Partners.

## A.B.C. PLAN DRIVE-IN CINEMA

Provision of Britain's first open-air drive-in cinema on a site adjacent to the racecourse at Sandown Park, near Esher, is planned by Associated British Cinemas. The scheme, for which planning permission has to be given, has been approved in principle by Sandown Park, the owners of the site.

It is understood that the project will be typical of the drive-in cinemas currently popular in the United States. These consist of a large open space, with a giant screen at one end. The car park in front of the screen is ramped so that cars at the back get a clear view.



## BATH ROAD IMPROVEMENTS NEAR LONDON AIRPORT

WORK is to start soon on another scheme to speed-up traffic between London and London Airport. This involves the reconstruction, with dual carriageways and pedestrian subways, of one mile of the Bath Road (A.4) between Cranford Hall Garage and Henley's Corner (where A.4 is joined by A.30).

The Minister of Transport has now authorised Middlesex County Council to accept the £140,000 tender of William Old, Ltd., which had been recommended for acceptance (*The Contract Journal*, June 30).

The present single carriageway, varying between 40ft. and 44ft. in width with central refuges, will be replaced by dual 24ft. carriageways with a 10ft. central reservation and 9ft. wide footpaths.

Because pedestrians have great difficulty in crossing this trunk road in Cranford village, three subways are being provided in advance of the main roadworks. The £92,000 contract for these subways was placed with Messrs. Leonard Fairclough, Ltd., last November, and the work should be completed by October.

### £500,000 Improvement Scheme

The new roadworks form part of a £1m. road improvement scheme for the Bath Road, between Henley's Corner and London Airport. An earlier stage of this scheme—construction of dual 24ft. carriageways on the 1½-mile stretch of A.4 from west of Sipson Road to Cranford Hall Garage—has been finished.

The roadworks have been designed, and will be supervised for the Ministry of Transport, by the Middlesex county engineer (Mr. H. S. Andrew, M.I.C.E., M.I.Mun.E.).

## HOUSE-BUILDERS' NOVEMBER CONFERENCE

THIS year's House-Builders' Conference is being organised by the Federation of Registered House-Builders to take place at the Connaught Rooms, London, on Thursday, November, 3.

The principal matters to be discussed will include the building of flats for sale, houses for letting, the design and standards of housing components and aids to sales. The object of the conference is to give builders an opportunity to hear contributions from experts on particular items of current interest to the industry and to take part in open discussion on those topics.

### Annual Dinner

The annual dinner and dance of the Federation of Registered House-Builders will take place at the May Fair Hotel on the preceding evening, November 2. The Minister of Housing and Local Government, Mr. Henry Brooke, has accepted the Federation's invitation to be its principal guest.

The president of the Federation, Mr. E. R. Bewyer, O.B.E., J.P., F.I.O.B., will be in the chair at both of these events.

## MANCHESTER BUILDING EXHIBITION

A Building and Public Works Exhibition is to be held at Belle Vue, Manchester, from July 5-15, 1961. The organisers are Seemore Exhibitions, Ltd., of Leeds and 412 Tottington Road, Bury.

Building Research Station Digest No. 1 (Second Series) entitled "Research and its Users" has now been published by H.M. Stationery Office, price 4d.

## MIXED DEVELOPMENT AT WALSALL

A NEW mixed development scheme is under construction for the County Borough of Walsall by the Birmingham division of Wates, Ltd.

The buildings, which are to Wates design, are of reinforced concrete frame construction and the contract comprises 128 flats in four eight-storey blocks; 10 flats in a single-storey block; 20 houses in two three-storey blocks; and 11 houses in two two-storey blocks.

The development also includes 39

garages, 158 tenants' stores, and three cleaners' stores.

The contract which is valued at £403,458 was started in June, 1960, and has a schedule time of 104 weeks. The site agent is Mr. G. H. Wright.

The Borough Engineer and Surveyor of Walsall is Mr. M. E. Habershon, O.B.E., and the chief architect is Mr. A. T. Parrott, A.R.I.B.A.

Wates' chief architect is Mr. K. W. Bland, A.R.I.B.A., and the senior architect Birmingham division is Mr. G. F. Elliot, A.R.I.B.A.



Model showing the general layout

## Late Construction News

KENT RESEARCH CENTRE.—A contract has been placed by the Reed Paper Group with James Miller and Partners, Ltd., Station Works, Pump Lane, Hayes, Middx., for the building and civil engineering works in connection with laboratories to form part of the proposed £2m. research and development centre at Aylesford, Kent. The laboratory building, which has been designed by the Group's architects, will cost about £500,000. The contractors for the concrete frame and floors are Truscon, Ltd., 35 Lower Marsh, London, S.E.1.

HERTS. HOSPITAL PLANS.—Tenders are expected to be invited shortly by the North West Metropolitan Regional Hospital Board for the erection of a residential block, estimated to cost £200,000, at Welwyn/Hatfield New Hospital, Howlands, Hatfield Hyde, Herts.

NEWCASTLE HOUSING.—Newcastle upon Tyne City Council have been recommended to accept the £198,184 tender of William Leech (Builders), Ltd., 7-8 St. James Street, Newcastle, 1, for 114 houses and 10 garages on Newbiggin Hall Estate.

SHEFFIELD SITE WORKS.—Subject to Ministry approval, Sheffield City Council have been recommended to carry out preliminary road, sewer and site works at part II of Park Hill Redevelopment Area by direct labour. The estimated cost is £114,970.

PLYMOUTH SHOWROOMS.—The contractors for new shop, showrooms and offices at Cornwall Street, Plymouth, for A. and R. Wallpapers, Ltd., are Richard Costain (Construction), Ltd. The architect is Theo. H. Birks, 38 Portland Place, London, W.1; the consulting engineers, C. J. Pell and Partners, London, W.1; and the quantity surveyor Basil A. Cohen, London, W.1.

BARRY TERMINAL CONTRACT.—Work commenced this week on the construction of a sea-fed bulk terminal at Barry, Glamorgan, for Mobil Oil Co., Ltd. Designed by Mobil's staff engineers, the terminal will be established on a nine-acre site and will have a storage capacity of 5,000 tons. John Laing and Son, Ltd., London, N.W.7, are the contractors.

## ROAD IMPROVEMENTS AT CAMBUSLANG

Two schemes, estimated to cost about £120,000, to improve the main Glasgow-Hamilton road (A.724) at Cambuslang are to be given a grant of 75 per cent. of the cost by the Secretary of State for Scotland.

The schemes will provide dual carriageways and wider footpaths between Westburn Road and Bank Street in the central area of Cambuslang, and along 300yd. of A.724 at Halfway.

The Secretary of State is also making a 60 per cent. grant towards a smaller scheme, estimated to cost £13,000, for the improvement of Greenlees Road (B.759), which links the rehousing area of Cathkin with the town centre.

## Obituary

It is with regret that *The Contract Journal* records the death of the following:

Major Harold F. White, aged 79, a representative for the past 35 years of W. and J. Glossop, Ltd., Hipperholme, Halifax.

Mr. S. Fox-Davies, architect, of Oswestry, Salop.

Mr. Jack White, aged 48, manager of the sales promotion department of the Aircrow Company and Jicwood, Ltd.

Miss E. L. Drinkwater, director and secretary of W. W. Drinkwater (Willesden), Ltd., sand and ballast merchants, London, N.W.10.

**International Construction**

## HYDRAULIC CRANES OVERCOME U.S. BRIDGE PROBLEMS

**A** NUMBER of construction problems in a recent American contract connected with the remodelling of the San Francisco-Oakland Bay Bridge were surmounted by the use of two mobile hydraulic cranes.

The contract involved the construction of new access ramps to the lower level of the two-level bridge, relocating main support columns under the bridge approaches, and reinforcing the upper deck sections.

Criss-crossing ramps, main support columns which had to be moved with halting traffic on the upper level, and restricted headroom, ranging from 50ft. to 15ft., were difficulties which the contractor had to overcome, all being further complicated by the necessity to erect steel scaffolding.

Unusual construction methods combined with careful synchronisation of the different parts of the contract appeared to be the solution. The contractor erected scaffolding under the existing approaches and simultaneously began work on the main support columns, which had to be moved to make way for the new access ramps; the footings for the ramps; and the reinforcing of the upper level deck beams. The new access ramps could be advanced only as new columns were in place, old columns demolished and scaffolding for the beam reinforcement removed.

This beam reinforcement was to be carried out by prestressing the beams with steel rods held in place by Howlett nuts, enclosing the beams and rods with concrete, and stressing the rods by tightening the Howlett nuts under 50-ton hydraulic pressure after the concrete had set.

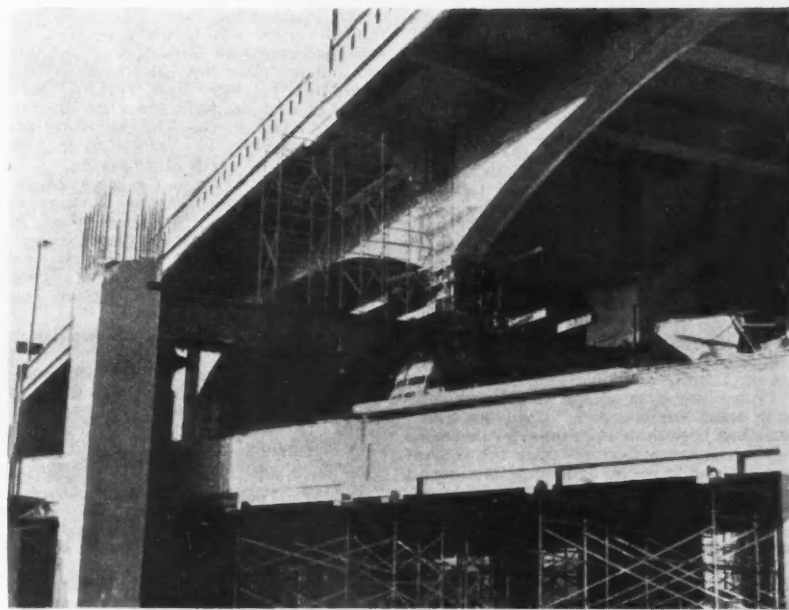
The beams, which fit flush with the under side of the upper level deck slabs, were enclosed with wood forms and these, necessarily, were built to within a few inches of the under side of the deck slabs. This left little space through which concrete could be poured.

Scaffolding and the restricted headroom caused by the slope of the bridge approaches made it still more difficult to get concrete into the forms. Furthermore,

concrete could not be mixed on the upper level and lowered from there as the upper level had to be kept open to traffic during the entire period of remodelling.

It was decided that the job called for highly manoeuvrable mobile equipment that could work under the bridge deck at its lowest point, where clearance was only

telescoping booms, which swing through 360 degrees and raise from horizontal to 60 degrees. The 410 has an 11-ton capacity and its boom extends from 25ft. to 48ft. The 210 has a capacity of seven tons and a maximum reach of 35ft. Both cranes are on self-propelled chassis equipped with four-wheel steering.



New access ramp under construction

15ft., and yet reach the platforms where the bridge deck is nearly 50ft. above ground. The equipment would also have to be able to pass concrete mix between the closely spaced scaffolding and place it on the work platform.

The two cranes chosen for the job, an Austin-Western 410 and a 210, have

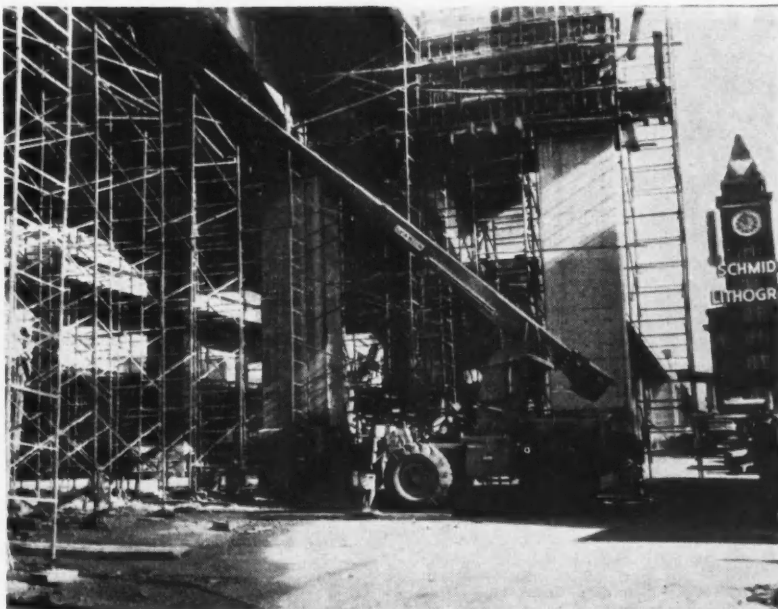
The combination of hydraulic extension, swing, raise and manoeuvrability permitted the contractor to pour concrete and position workmen in difficult locations under the bridge deck in spite of closely spaced steel scaffolding and restricted overhead clearances.

To get the concrete in place on the platforms, bottom-dump concrete buckets, loaded at ground level, were lifted by the 410 crane and, by use of the telescoping and raising boom, passed upwards through the small openings between the scaffolding to the platform. From the platforms, the concrete was placed in the forms by hand as the most effective way to ensure placing the concrete properly. A total of 1,600 cu. yd. of concrete, positioned and poured in this manner, was needed to enclose the beams.

When the 410 crane was not handling concrete, it was used for many other tasks involving hard-to-reach places on the job. For such work as chipping concrete, demolition work on old support columns, removing forms from enclosed beams and tightening Howlett nuts to stress reinforcing rods on deck beams, men were quickly and safely put into position by means of a platform attached to the boom tip of the crane.

The platform was built on the site. Four feet wide, 7ft. long and equipped with a removable guard rail, the welded steel platform was fitted with a line to hold it level regardless of the angle of the boom. Held to the boom tip by a steel pin, the platform could be quickly removed and the boom hook easily replaced.

The contractor for the work, which cost about \$14m. and was carried out for the California Tool Bridge Authority, was Peter Kiewit Sons, Omaha, Nebraska.



Hydraulic crane overcomes restricted access problem

**International Construction****AUSTRALIAN BUILDING IS BOOMING****From a Correspondent**

**A**USTRALIANS are finding the growing-pains caused by their country's building boom uncomfortable but tolerable. The boom, which really got under way in the late 50's, shows no signs of slowing down and, on present indications, is more likely to accelerate. Its accompanying problems—among them traffic and transport, unsightliness, outward sprawl, high prices, sewerage lag—have been intensified by the lack of overall planning.

What are the facts behind the boom? The building industry is a big one by Australian standards, employing just on 130,000 persons. Though the number employed has increased by only 19,000 in the last eight years, two-thirds of that total gain has occurred in the last 12 months. The total value of buildings under construction at the end of March was £A377.1m., a rise of 10 per cent. on the previous year. Most of the increase was in buildings other than dwellings; the value of commercial buildings under construction rose by £A30.4m. in a year to £A213.5m.

**Hotel Construction**

Probably the most spectacular activity is in hotel construction. Until last year little had been done to improve or increase city hotel accommodation since before the war. Now, it seems, the hotel industry has set out to make up for 20 years' stagnation in three years. About £A40m. will be spent on building new hotels in the major cities of Australia in the next three years. This figure includes only the projects that have been publicly announced or started; others are in the planning stage.

In Sydney £A20m. of hotel development is either under way or will be soon. This includes one hotel, the Chevron, worth £A7.75m. In Melbourne the amount is £A15m., including the first stage, worth £A5m., of the Melbourne Chevron. When the final stage is completed this hotel will have cost £A12m. About £A2m. is to be

spent in each of the capital cities of Adelaide, Brisbane and Perth between now and 1962.

**Housing Industry**

Two other interesting aspects of the building boom are the development of mass building of houses and of large firms carrying out home improvements. Ten years ago the idea of building homes by the dozen was regarded as revolutionary. Now it is the usual way to get a home. The small self-employed builder is on the way out and his place has been taken by the large firm that buys land, puts in roads, footpaths and drainage and even bridges, and then builds houses. The biggest builder of housing units in Melbourne is now erecting £A5m. worth of homes.

The firms carrying out home improvements arose because of the shortage of finance. Home owners found it difficult to get builders to undertake renovation work because most preferred to work on new constructions where money was safe. Time payment has changed the situation and created a new industry.

As for the growing-pains, the population of Melbourne rises by 50,000 a year and the Metropolitan Board of Works estimates that it needs £A20m. now to catch up with the city's sewerage lag. And the Board's annual income amounts to far less than that figure. Water supply and drainage provision are also being far outstripped.

**Lack of Planning**

But the major problems brought by the building boom have been caused by the lack of adequate planning. Most of the experts in Australia seem to be agreed on the need for a comprehensive plan for inner city development for all Australia's large cities. One of the largest obstacles in the way of these plans is the complex system of local, State and Federal Government bodies, each pulling this way and that and thus hampering effective planning.

The best example of this is in Australia's largest and oldest city, Sydney, where the

building boom will, according to one opinion, accentuate old planning problems and make too large a part of future planning merely a correction of past mistakes. In Sydney the Cumberland County Council is responsible for planning but this body has for the most part lacked executive power. In addition, while State Government departments and statutory bodies have to some extent been bound by the Council's plan, Commonwealth Departments have not.

The aim of city planning is to promote the orderly and slightly development of a city and its environs along rational lines. This ideal is not being met in Sydney or any major city in Australia.

More than two-thirds of the work force in Sydney, a city of 2,000,000 people, work in the inner city area and this centralisation of employment is the main cause of Sydney's traffic problem. The problem is aggravated by the radial pattern of roads which forces almost all traffic through this comparatively small central area even in cases where both the origin and ultimate destination are in outer suburbs.

There are signs that Sydney is now taking its planning problem in hand, with a common-sense scheme of concentration—proper development of the inner city—decentralisation—satellite towns. Sydney's first satellite town is expected to be Campbelltown, a town of 15,000 people about 30 miles south-west of Sydney. Satellite towns should be able to preserve their own identity and also provide residents with the alternative of city or local employment. Campbelltown fills this bill.

The problems of Australia's building are not very different from those of other countries. These penalties, no doubt, must be accepted if the principle of growth is also accepted.

**YALE AND TOWNE IN SWITZERLAND**

Yale and Towne International, Inc., have completed arrangements to establish a branch office at Zug, near Zurich, Switzerland.

It is planned that the Zug office will be in operation by October 1, 1960. In addition to administrative and market research functions, it will be responsible for promoting on a world-wide basis the sales and service of a wide variety of materials handling equipment and lock and hardware products manufactured by The Yale and Towne Manufacturing Company.

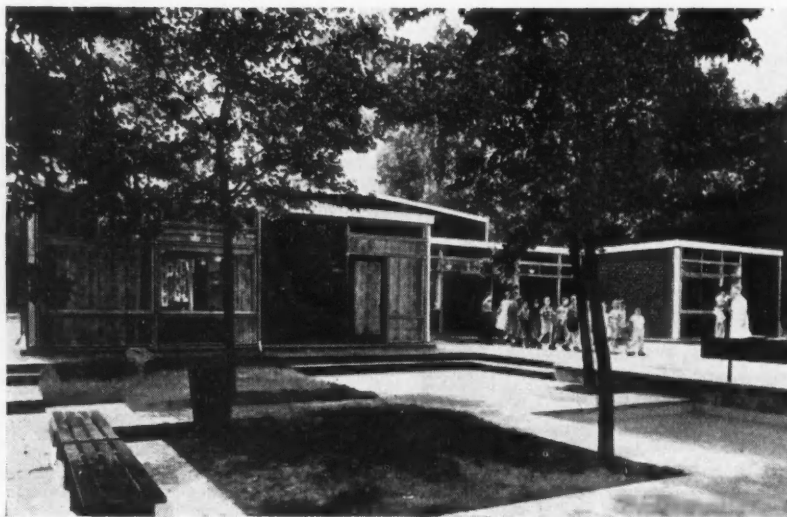
Also announced is the appointment of Mr. Charles F. Burgman as managing director of Yale and Towne International, Inc. Mr. John O. Sewell, managing director of the British divisions of The Yale and Towne Manufacturing Company, has been appointed a director and vice-president of Yale and Towne International, Inc. Both attended the recent board of directors meeting held at Zug.

**COOLING TOWERS FOR MEXICO**

Head Wrightson Processes, Ltd., have received an order from the turbine generator division of Associated Electrical Industries, Ltd., for three "Counterflo" induced draught cooling towers.

These towers, each of which consists of three cells with two 20ft. diameter fans, are to be installed at Ciudad Juarez, Mexico, where they will each provide cooling water to one of the 3-33-MW A.E.I. turbine generator sets being supplied for this new power station.

1,560,000 gallons of water per hour are circulated to each generator set and the towers will reduce the temperature from 89.4 degrees F. to 80 degrees F. Induced draught towers were selected for this operation after it was found that the site available and the duty involved made them a more economic proposition than other forms of cooling equipment.



The single-storey primary school, Britain's exhibit at the XII Triennale, held in Milan. The school incorporates the special system of prefabricated steel construction designed and developed by Brockhouse Steel Structures, Ltd., West Bromwich, in collaboration with the Nottinghamshire Education Authorities. This system forms a basic element of the Consortium of Local Authorities Special Programme of School Building in this country. The architect is Mr. W. D. Lacey, A.R.I.B.A., county architect, Nottinghamshire



**International Construction****RECORD SUM FOR COLONIAL  
DEVELOPMENT****£10,624,502 for Improving Communications**

**B**RTAIN provided the record sum of £25½m. for development and welfare schemes to benefit her overseas territories, in the last financial year.

This is shown by provisional figures in the annual Return of Schemes made under the Colonial Development and Welfare Act by the Secretary of State for the Colonies.

Issues for development projects in the overseas territories made during the year by the United Kingdom Government, reached the total of £24,115,000 with a further £1,470,000 for research. These figures bring the total for issues since April 1, 1946 to £200,604,770 of which £184,642,442 was for development and welfare and £15,962,328 for research. Commitments undertaken during the year totalled £33,001,222 for development projects, and £2,370,261 for research.

For the first time, the return gives details of Exchequer Loans approved towards Colonial development programmes. In the year under review—the first in which Exchequer Loans were approved—a total of £17,987,500 was made available under this heading.

**Improving Communications**

The largest total of grants approved for development schemes came under the heading of communications. It amounted to £10,624,502 of which £6,569,631 was for roads, £3,308,238 for the development of ports, harbours and water transport, £389,355 for civil aviation and £337,500 for railways.

Grants for education totalled £5,949,234

of which £2,661,667 was for primary and secondary education and £2,069,799 for higher education.

In the economic field, the total of grants approved during the year amounted to £3,713,340. Agricultural and veterinary schemes headed the list, accounting for £1,990,603; other outstanding totals in this sector were the £355,635 approved for forestry schemes, £331,126 for soil-conservation projects and £323,418 for irrigation and drainage.

Schemes for developing water supplies and sanitation received grants totalling £2,993,512; medical and health services benefited to the extent of £2,564,655; and a total of £659,203 was granted for training schemes for the Overseas Civil Service.

Grants approved for research work totalled £2,370,261. This total included £1,009,974 for agricultural research, £560,600 for work on pesticides and £375,080 for medical research.

**Development in Africa**

Of the £647,888 provided for development schemes in Kenya, £376,633 was accounted for by grants for the intensification of African agriculture. Tanganyika received £958,671, the largest grant being £182,000 towards the establishment of a nature conservation scheme in the Ngorongoro Crater Highlands. Grants approved for Uganda totalled £3,211,282 including £1,751,250 for the road improvement programme and £1,229,062 for the new hospital at Mulago.

Farther south, Northern Rhodesia was

granted £384,000 for the construction of roads while grants for Nyasaland totalling £1,529,534 included £900,000 for improvement of the Blantyre/Limbe water supply.

Grants for Nigeria totalled £1,420,027 including £341,500 for the development of health services and £308,120 for building schools, in the Northern Region, and a total of £443,250 for the expansion of general education in Lagos. Of the £1,978,137 approved for Sierra Leone, £425,190 was for various schemes benefiting Fourah Bay College, and £360,000 for Freetown Teacher Training College and £337,000 for railway development. Four grants for the improvement of Gambia's communications—amounting to £306,210—included one of £189,000 for new main roads.

**New Roads and Harbours**

Grants and loans for Malta totalled £8,753,567, among them a grant of £2,158,100 for the construction of a deep-water wharf and grain handling and storage plant, and a loan of £2m. towards the conversion of the Naval Dockyard for commercial ship-repairing.

For development schemes in Aden, grants totalling £337,761 were approved, including £133,450 for road-building.

Grants for Mauritius during the year under review amounted to £541,145 including £540,000 for harbour improvement. A wide variety of schemes in the Seychelles benefited to the extent of £412,442.

In the Far East, grants totalling £615,801 were approved for development in North Borneo—including £210,000 for road construction—while grants for Sarawak amounted to £742,390 including a total of £424,283 for various road works.

Among grants to the West Indies for schemes of general benefit (totalling £1,273,235) were 21 grants for the University College of The West Indies amounting to £803,976. Development grants for individual territories in the federation provided another £1,449,858; grants to British Guiana totalled £941,907; and to British Honduras £925,212.

**UNUSUAL U.S. TRENCHING METHOD****Shield Protects Pipelayers**

**D**EEP sewer trenching by an unusual method, utilising two Parsons 310 Trenchliners, is being carried out at Boise, Idaho, in a scheme to construct 35 miles of main sewer for the Boise Bench Sewer District.

Each of the trenchers used to dig the 9ft. to 20ft. deep trench pulls along behind it a shield to protect the pipelayers from caving-in of the sides of the excavation.

The shields are 18ft. long and taper from front to rear to enable them to be easily pulled through caved-in material.



Trencher working on Boise scheme

They are made in 4ft. high sections which bolt on top of each other, so that by adding or removing sections the height of the shield can be matched to the depth of the trench.

In addition to the shield, each trencher tows a conveyor-screen unit to separate the fine material from the coarse, deposit the fines on the pipe first, and backfill the trench. The unit, especially designed for the Boise scheme, consists of a 60ft. long conveyor and 3ft. by 8ft. shaker screen. Material excavated by the trench is carried back by the conveyor to the screen, where coarse and fine are separated. The fines drop into a hopper ending in an adjustable trunk, which directs them on to the pipe in the trench. Coarse material slides off a short chute at the back of the screen and goes into the trench on top of the fines.

On most parts of the job there are several feet of soil above a hardpan strata, with an unstable mixture of sand and round cobble rock beneath the hardpan. In spite of these difficult digging conditions, as much as 525ft. of completed sewer has been laid in a day.

The main contractors for the scheme are Morrison-Knudsen Company, Inc., of Boise. The Parsons Trenchliners are manufactured by The Parsons Co., Newton, Iowa, a member of the Koehring group.

**SITE FOR QUEENSLAND  
REFINERY**

A plan to build a £A15m. oil refinery at Port Alma, Queensland, is being considered by Ampol Petroleum, it was recently announced in Sydney. The company have been granted an option over a 400-acre site by the Queensland Government.

## Men and Movements

**T**HE new president of the Association of Public Lighting Engineers, to be installed during the annual conference at Folkestone this month, will be **Mr. F. C. Smith**, M.B.E., F.C.S., M.Inst.Gas E., F.I.E.S. Now acting as a consultant to the Gas Council, Mr. Smith held the position of secretary to the Watson House Centre of the Gas Council at the time of his retirement from the North Thames Gas Board. He joined the Association in 1933, was elected as a member of Council in 1952 since when he has served continuously in that capacity and last year was elected vice-president. Mr. Smith was president of the Illuminating Engineering Society in 1939, and was chairman of the Joint Lighting Committee, Institution of Gas Engineers for several years. At present he serves on several B.S.I. Committees, including Illumination Industry's Standards Committee, and the Code of Practice Committee for Street Lighting.



F. C. SMITH

**Mr. John Hunt** has recently joined Saville (Tractors), Ltd., as sales representative for construction equipment, covering the West Midlands territory. He has recently been employed by Tarslag on plant inspection.

**Lord Tweedsmuir** has been appointed a director of The Cementation Co., Ltd.

Expandite, Ltd., have announced the appointment of **Mr. J. H. Price** as general manager of their Australian company, Expandite (Australia) Pty., Ltd. Mr. Price leaves this week for Australia, where he will take over from **Mr. J. M. Robb** who will be returning to the parent company in November. Mr. Robb will take up an important position in the overseas development division of the Expandite group.

**Mr. H. R. Schofield**, Assoc.I.E.E., has been appointed chief transmission project engineer to the Central Electricity Generating Board. In 1949 he became transmission construction engineer at headquarters in London, the post he now relinquishes to take up his new appointment. **Mr. P. P. Fowler**, A.M.I.C.E., A.M.I.Struct.E., senior assistant engineer, has been appointed civil engineer (transmission) of the Board.

**Mr. L. T. Bates**, B.Sc.Eng., A.M.I.Mech.E., A.M.I.Plant E., has relinquished his position with Gilbert-Ash, Ltd., to take up an appointment as chief mechanical engineer with Amalgamated Asphalte Companies, Ltd.

British Insulated Callender's Cables, Ltd., have announced the appointment of **Mr. D. G. Denoon** as public relations manager of the BICC group.

**Professor George Danforth**, director of the Institute of Technology, Illinois, arrived in this country recently at the start of a four-week European lecture tour, during which he will visit 18 cities in five countries. An advocate of stainless steel curtain-walling, Professor Danforth is bringing with him exhibits to the value of £20,000 to illustrate his lectures, the first of which was given at the Royal Institute of British Architects earlier this week.

Mercantile Credit Co., Ltd., have announced that **Mr. B. L. Bole**, at present branch manager of Luton office, is returning to the London branch where he will be working in conjunction with all branch managers in the London and home counties area to develop the block discounting and domestic sides of the business. Mr. Bole will be succeeded by **Mr. T. Ascough-Patterson**, at present a representative at Watford, who will assume the title of sub-branch manager at Luton. **Mr. John Horton**, at present branch manager of the Birmingham office, will join **Mr. Reeves Hall** as Midlands area manager. **Mr. J. C. Stait**, at present branch manager of Hanley office, assumes managerial responsibilities of the Birmingham office. **Mr. B. Hallam**, at present a representative attached to Hanley branch, will become branch manager of that branch.

Richard Hill, Ltd., a member of the Firth Cleveland group of companies, have made two new appointments to their board. **Mr. A. W. Thwaites** becomes commercial director. He was previously commercial manager, and has served with the company for 38 years. **Mr. H. M. Macgregor** becomes works director. He was formerly works manager, and has spent the whole of his working life in the wire industry.

**Mr. W. E. Pearson** has resigned from the board of Leyland Motors, Ltd.

A party of Russian engineers from the U.S.S.R. Trade Delegation to Great Britain, headed by their chief technical engineer, **Mr. V. Gorbatskevitch**, recently attended the specification tests of a new type of mobile roof scaling tower, held at the Glazebury plant of the manufacturers, F. Taylor and Sons (Manchester), Ltd. The



tower is one of four which, as reported previously, form part of a £250,000 contract for mobile mining equipment destined for use in Soviet mines in conjunction with Taylor mobile drilling rigs equipped with Holman drifters. The photograph shows members of the delegation during their visit to the Glazebury Plant.

**Mr. J. Davidson Pratt**, chairman of the British Road Tar Association since 1957, will retire at the end of this month. From 1937 to 1957, while he was general manager and director of the Association of British Chemical Manufacturers, Mr. Davidson Pratt was part-time chairman of the B.R.T.A.

A British faculty member in the Technological Institute of Northwestern University, Evanston, Illinois, has been named

a full professor of civil engineering. He is **Dr. O. C. Zienkiewicz**, who has an international reputation in the field of large dam construction and structural model work. He has been at the Northwestern University since 1957.

Among passengers leaving London Airport for the United States recently were **Mr. P. Hamilton**, and **Mr. T. D. A. Caunt**, managing director and sales development manager of Fred Myers, Ltd. Mr. Hamilton and Mr. Caunt will be in America for about two months, the first at Caterpillar Tractor Company's factories in Peoria, Illinois,



P. HAMILTON

attending an international dealer sales conference, and the second visiting various Caterpillar dealers. They will be returning to this country on October 18.

**Mr. Gilchrist Smith** has been appointed water engineer, and **Mr. W. Fitzpatrick** deputy water engineer, to the newly formed North Calder Water Board which takes over various Lancashire water undertakings on October 1.

### MUNICIPAL

Nottingham City Council have been recommended to appoint **Mr. Frederick M. Little**, deputy city surveyor at Manchester, as city engineer in succession to **Mr. R. M. Finch**, who is shortly to retire.

After 25 years as borough surveyor at Tenterden, **Mr. Gilbert L. Turner** has retired.

### HIGHWAY ENGINEERING SCHOLARSHIP AWARD

The third Aveling-Barford annual scholarship to the Birmingham University School of Highway Engineering has been awarded to **Mr. M. Douglass**, of Wanganui, New Zealand, who will commence his 12 months, post-graduate course in October.

**Mr. Douglass**, aged 28, graduated from the Canterbury University, Christchurch, New Zealand, in 1957, with the degree of Bachelor of Engineering (Civil), having already one the "Templin Scroll" for the best paper presented to the Student Chapter of the New Zealand Institution of Engineers. Since 1956 he has been employed by the Wanganui City Council. Last year he was appointed town planning engineer in charge of all aspects of zoning and planning, traffic routing and control, and city roads layout and standards.

### PUBLIC CLEANSING COSTING RETURNS

A summary is now available of the costing returns furnished by the larger urban authorities and a selected number of rural authorities in respect of their public cleansing services for the financial year ending March 31, 1959. Copies of the summary (entitled "Public Cleansing: Costing Returns for 1958-59") may be purchased, either directly or through any bookseller, from H.M. Stationery Office, price 5s. 6d. net.

In a circular to local authorities the Minister of Housing and Local Government expresses the hope that the summary, which includes detailed analyses of the returns, with comparable costs on a unit basis, will be of assistance to them in reviewing the cost and efficiency of their own public cleansing services.

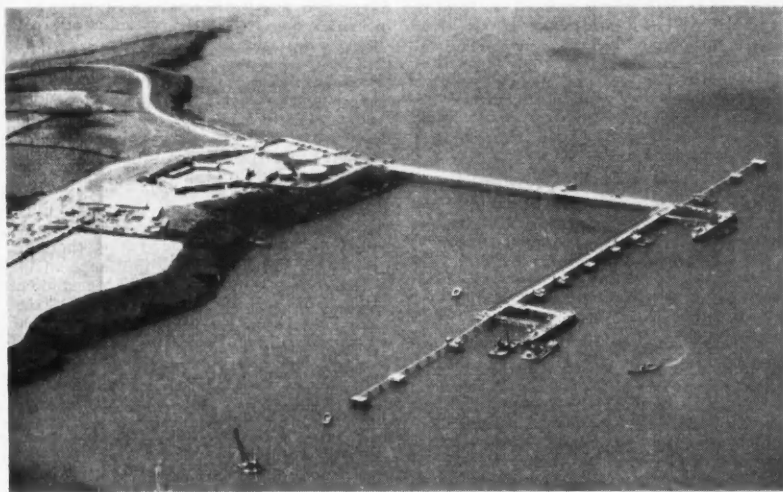
## B.P. TANKER BERTHS AT MILFORD HAVEN NEAR COMPLETION

THE first crude oil tanker to use the new deep water jetty at Angle Bay, on the southern shores of Milford Haven, is expected to dock this month. Work is now nearing completion on the two berths, which have cost British Petroleum about £1.8m. The contractors are Christiani and Nielsen, Ltd., Romney House, Tufton Street, London, W.1.

Construction of the berths has been a difficult operation as it was necessary to build on an irregular rocky bottom, in 80ft. of water at high tide. The berths are designed to withstand the berthing impacts from tankers of up to 100,000 tons d.w., the main berthing heads being solid concrete piers, each carrying four 100-ton shock-absorbing gravity fenders.

The work has involved building a 1,350ft. shore arm extending from immediately below Popton Fort, with a sea arm of 2,300ft. at right angles, upon which the two berths are formed. Rendel, Palmer and Tritton, 125 Victoria Street, London, S.W.1, are the consulting engineers for the scheme, which is part of a larger £5m. project to pipe crude oil from Milford Haven for 60 miles to the company's refinery at Llandarcy.

Another part of the scheme has been the rehabilitation of Popton Fort as an administrative centre. This contract was let in December, 1957, to Shellabear, Price, Ltd., 6 Queen Anne's Gate, London, S.W.1. It included the land civil engineering work for the tanker terminal, and has provided offices, a fire station, canteens, excavations for storage tanks and a 1½ mile road.



Aerial view of jetty and administration area under construction

### WESTERN AVENUE UNDERPASS OPENING

The £830,000 underpass on Western Avenue at its junction with Hanger Lane, Middlesex, is expected to be officially opened next month. The underpass, with its twin 24ft. carriageways (with built-in de-icing equipment), has additional sides to form a surface connection with the North Circular Road.

The scheme commenced in June, 1958, and was originally estimated to cost £761,000. The contractors are A. E. Farr, Ltd., and the consulting engineers, Rendel, Palmer and Tritton.

### CONTRACTORS' HANDBOOK

Some 1,760 local authorities and 260 consulting engineers are now receiving a copy of the 1960-61 edition of the Federation of Civil Engineering Contractors' Handbook.

This handbook contains all the main Federation documents, including the Working Rule Agreement of the Civil Engineering Construction Conciliation Board, the I.C.E. Conditions of Contract and the Federation Dayworks Schedules, together with alphabetical and sectional lists of the 690 members of the Federation.

Copies of the 1960-61 handbook may be obtained, price 12s. 6d. each including postage and packing, from the Federation of Civil Engineering Contractors, Romney House, Tufton Street, Westminster, S.W.1.

### DISCHARGES INTO ESTUARIES AND TIDAL RIVERS

Mr. Henry Brooke, Minister of Housing and Local Government, has sent a circular to River Boards and local authorities drawing their attention to the Clean Rivers (Estuaries and Tidal Waters) Act, 1960, which comes into operation on September 29.

Under the Act, River Boards will decide whether any new discharge of sewage or trade effluent can be made into tidal rivers, and to what extent it must be purified first. The Minister will decide cases in dispute; sea fisheries committees and port and harbour authorities will be consulted where their interests are affected.

The schedule to the Act lists all the rivers of England and Wales (except the Thames, where the Port of London Authority already has powers). One problem which had to be overcome was the exact description of the places to which the new control would extend, since they could not include the open sea or the whole coast. This was solved by using ordnance survey map references by means of which any place in the United Kingdom can be pin-pointed to within 33ft. (10 metres).

A verbatim report of the conference on "Builders of the Future" held recently by the Yorkshire and North Western Educational Associations for the Building Industry, in association with the Yorkshire Federation of Building Trades Employers, is now available, price 5s. per copy plus postage.

### CONTROLLING SHAREHOLDERS AND DEATH DUTY

To the Editor of "The Contract Journal."

Sir,—The article headed "A Lawyer Considers—Controlling Shareholders and Death Duty" in your issue of August 18, 1960, throws into sharp relief, once more, the perils and pitfalls awaiting the many who have the ability and acumen to build a relatively substantial business and who wish to retain control during their lifetime.

The surprising fact, in our experience, is that so frequently the professional advisers hesitate to draw attention to the dangers ahead, or if they do, detailed consideration is deferred and the putting off process goes on indefinitely until it is almost too late.

One reason, perhaps, is the common belief that there is no satisfactory half-way house between near complete ownership and no control at all.

No one should pretend that the solution of this and many other kindred problems is a simple matter, but those who have a grasp of the overall position usually can produce a solution to the great relief of the successful man and, of course, all his dependents.

One final point is that in many cases senior executives who have made a very real contribution to the success of the company, but who have little or no financial stake in it, do suffer quite seriously due to the failure of their colleague who has a major shareholding to take suitable action. They too are surely justified in expecting the major shareholder to consider their interests.

Yours etc.,

W. R. FRAMPTON,  
Director.

Estate Duty Consultants, Ltd.,  
31-45 Gresham Street,  
E.C.2.

### EXHIBITION DATES

To the Editor of "The Contract Journal."

Sir,—With reference to Mr. Ellis's letter in your issue of September 1, I should like to make it clear that the National Federation of Building Trades Employers is concerned with only one exhibition in 1961—the Construction Equipment Exhibition to be held at the Crystal Palace. It is not concerned with the Castle Bromwich Exhibition, and announcements issued by the sponsors indicating that it is have been withdrawn by them at my request. The National Federation gives no official support to the Public Works and Municipal Services Exhibition at Olympia and takes no part in it.

I should be glad if you would kindly acquaint the readers of your Journal with these facts, as the letter from Mr. Ellis may have led many to draw wrong conclusions.

Yours, etc.,

WILLIAM D. BRYANT,  
Public Relations Officer,  
National Federation of Building  
Trades Employers,  
82 New Cavendish Street, W.1.

### LOWER NUCLEAR POWER COSTS FORECAST

In a report prepared for their general conference in Vienna on September 20, the International Atomic Energy Agency forecast a reduction in the cost of power from nuclear generating stations.

They refer to possible reductions in fuel cycle costs which will result from lower fabrications and re-processing charges, higher burn-ups and a fall in uranium prices. In addition, development of improved, but low cost, reactor materials will result in an overall economy. Sizeable savings can also be expected from the standardisation of reactor components.



# Talking of Safety

by  
**"DRAGEE"**

IT was some days after my return from the Yorkshire Moors that an incident occurred which reminded me of Alf Kirby's aerial cableway.

My local paper was reporting a mishap with a similar device: the cable had broken in the course of operations, and a bundle of reinforcing bars had fallen down, bouncing and scattering over a fair area of ground. There was no warning, and several workers underneath had been caught in the shower. One man was badly injured; three others went home after hospital treatment. The novel features of the accident produced a mild local sensation.

The published results of the inquiry were interesting. Although no actual figures were quoted, it appears that at the time of the accident the ropeway was supporting a load very much less than any which it had been carrying the previous day (the accident happened soon after work commenced) and at that time it would have been operating well within its capacity, had it not already been seriously weakened by repeated overstraining. Actually the appliance failed at a point close to one of the anchorages, where it had been bearing against the heel of an angle bracing member. This, then, was not so much the usual case of "the last straw" as the story of a camel which was so persistently overworked that eventually it collapsed under a weight which normally it would scarcely have noticed.

Another frightening revelation was made to the effect that workmen had been in the habit of getting themselves transported with the load to the landing point. This, mercifully, was not one of those occasions.

I learned a few more details from Peter Walker, our resident engineer from the wilds of Scotland. Peter was putting in some time at a local job, and if there's anything he loves more than engineering it's a piece of gossip—preferably about engineers. It appears that the authorities went into action very soon after the mishap.

"They soon decided it was a building operation and then they wanted to see the registers. 'You'll be lucky' said the clerk—he must have had a grudge against the agent—the people here think a register's something to do with births, marriages and deaths.' So then they got on to the agent. 'Cripes!' said the agent, 'am I supposed to have a register for that thing?' 'Why, yes,' they answered, as smooth as you like, 'does this mean you haven't done any inspections?' But the agent was fly. 'Of course I've done the

"Dragee," who is a practising safety engineer, would welcome subjects for discussion in this column. All names of persons mentioned in these discussions are entirely fictitious. Questions of law are expressed as the author's personal opinions and are not claimed to be authoritative.—EDITOR.

inspections, I just didn't know I had to write them up in a register."

"Gosh!" I exclaimed.

"Wait a bit," said Peter, "you haven't heard it all, yet. The agent comes up smiling. 'Where does it say I have to examine an overhead ropeway?' he demanded. 'In regulation 34, which says that every lifting appliance must be inspected every week, and an aerial cableway is defined as a lifting appliance in regulation 3.' 'Is that the law?' cries the agent in the manner of the Merchant of Venice, and they tell him 'Yes, it is.'"

"Were you at the keyhole all this time?" I asked incredulously.

"No," said Peter, with simple dignity. "I was in the bar of the 'Bunch o' Grapes' minding my own business. Well—you can't help people talking, can you? So then they reminded him that regulation 34 also says—correct me if I'm wrong—that every lifting appliance and all its fixtures, etc., must be properly maintained and of sound material and construction and be strong enough to do its job. Right?"

"Right—near enough," I replied.

"O.K.—don't carp. So there they'd got him—banged to rights, as my old granny used to say. Then they hauled the erection manager in. What was he doing to let this state of affairs come about? they demanded. The erection manager paled and staggered back. . . ."

"You've been reading too many sensational novels lately," I cut in.

"... he staggered back. 'Don't tell me,' he said, 'that he hasn't used the register I sent him?' 'Not only has he not used it, he doesn't even know such a thing exists,' they said.

"After that, they produced the damaged rope. Parts of it looked like a hedgehog, there were so many broken wires sticking up. What is the limit for damaged strands?"

"The building regulations say that a wire rope must not be used for raising or lowering or as a means of suspension if more than 5 per cent. of the wires are damaged in any length of 10 diameters," I answered.

"Thanks. Well in this case it was more like 50 per cent. Fortunately for that outfit they were working in a rural district where the bench of beaks was bossed by a lady who was a bit of a purist. She refused to be convinced that the work was a building operation, and so the case never got properly on to its feet. The sighs of relief from the agent and his merry men sounded like a channel gale, but I reckon there'll be a few claims for damages coming in very shortly. It'll be interesting to see what happens then."

"Keep me informed," I said.

## BOOK REVIEWS

**Prestressed Concrete Vol. II** (Statically Indeterminate Structures), by Y. Guyon. 9½ in. by 6 in., pp. 741. Publishers, Contractors Record, Ltd., London, and John Wiley and Sons, Inc., New York. Price 95s.

The French edition of this very large second volume has been magnificently translated by C. Van Amerongen, who has taken the opportunity to add many appropriate footnotes to ensure that the author's meaning is properly understood. There is no doubt that prestressed concrete has benefited enormously from the theoretical and practical works of M. Guyon and who, by today, has won the admiration and esteem of engineers interested in the theory and applications of prestressed concrete in all parts of the world.

The book is so large that engineers and research workers generally can only profit fully from it by long and determined study. It is appropriate that the book should be entitled "Statically Indeterminate Structures" as M. Guyon was the first to consider the application of the principle of prestressing to statically indeterminate structures.

The book does not deal with all types of statically indeterminate structures but only those subjected largely to bending and consisting of constant or nearly constant cross-sections. Domes, shell roofs, arches, tanks, pipes, and other such structures have not been included.

Most readers will be surprised and disappointed that the usual alphabetical index has been deliberately omitted, the reason given by the translator being that the treatise is not a book of reference in the usual sense, but that it calls for patient study, and the topics are so inter-related as to make any brief "looking up" of some items almost pointless. But there is such a great wealth of valuable data in the book that all prestressed concrete enthusiasts will wish to look up some topics even after long and patient study.

Reference is also made to a few topics not only in different sections of Vol. II but also in Vol. I and this would surely make a comprehensive index invaluable to all concerned.

M. Guyon has certainly produced a book that should be on the shelves of all engineers interested in prestressed concrete. It contains many of his published papers, occasionally with little alteration, with the result that a change of view and a little repetition are almost inevitable.

For example, the important question of the prediction of the appearance of tensile cracks in the concrete is discussed on page 456 of Vol. I, where it is stated that cracking is unpredictable and the range of cracking stress considerable, namely, between 400 and 1,800 lb./sq. in. for concretes of much the same quality. In Vol. II, on the other hand, it is definitely stated that micro-cracks must be distinguished from visible cracks and there follows some confusion over the use of these two terms.

In spite of these minor criticisms there is no doubt that the author and translator are to be warmly congratulated on the production of such a voluminous treatise on this important and difficult subject. It will remain for many years one of the standard books of reference for the solution of some notable complex problems and the book is highly recommended to prestressed concrete specialists.

R. H. E.

## L.C.C. CONSIDERING REVISED WATERLOO SCHEME

London County Council planning committee are considering revised proposals by the Southern Region of British Railways for the development of a two-acre site fronting York Road at Waterloo.

The plans envisage a building with shops on the ground floor and several floors of offices for railway staffs above. An earlier scheme for a £3½m. development was rejected as being too high.



## THE MARCH OF STANDARDS

### B.S.I.'s Report for 1959-1960

**T**HE 1959-1960 report of the British Standards Institution, which will be presented at B.S.I.'s annual general meeting on September 28, shows that the 12 months' period to March 31 was a busy and successful one from the standards viewpoint.

It was a year of record output with 297 new or revised British Standards published—that is substantially more than one for every working day of the week. There were record sales, too, of nearly 1,100,000 British Standard publications, about one-quarter of which went overseas. The number of subscribing members was also at a peak figure of over 11,000.

The record of "work-in-hand" makes it clear that B.S.I.'s range of activities is becoming ever more extensive and suggests that in the coming year or two the output of standards will be at least as high as in the year under review. The report strikes a warning note, however. As B.S.I.'s burden becomes heavier "an accelerated rise in subscriptions and income generally will be necessary if B.S.I. is to carry out its basic work with proper efficiency and if it is to continue and extend the essential related services of promoting the application of standards, helping in education and providing publicity, especially overseas."

#### Some Highlights

Reviewing features of the year's technical work the annual report picks out for special mention the publication of a glossary of terms for work study (B.S.3138) of which over 10,000 copies have been sold, completion of the first part of a "Master schedule of wrought steels" (B.S.3141, dealing with carbon steels), the combination of B.S.449 and CP 113 for the use of structural steel in buildings, the first of a series of standards for data-processing (B.S.3174 dealing with punching codes), an improved standard for chromium plating with an associated labelling scheme, and a code of practice for prestressed concrete.

The number of standards under which the Kite-mark is used rose from 145 to 170, says the report, and increased use had been made of the Kite-mark in newspaper and magazine advertisements.

The opening during the year of B.S.I.'s

centre at Hemel Hempstead provided a central point for testing and inspection under a number of Kite-marking schemes.

Reference is also made in the report to the setting up of the new approvals board for domestic electrical appliances, a development in which B.S.I. had taken a leading part together with B.E.A.M.A. and the electricity supply industry.

#### International Activities

The importance which is now attached to standards co-operation at the international level is reflected in the amount of space given in the report to the work of the International Standards Organisation (ISO), International Electrotechnical Commission (IEC) and other standardisation agencies.

The work of ISO had been steadily increasing and there had been a full programme of technical committee meetings during the year, including plenary meetings of over 20 committees. A co-ordinating committee on testing of metals had met twice and made considerable progress. New technical committees had been established to deal with office machines and protective helmets; others put forward for consideration were for cranes and derricks, conveyors and elevators, and computers and automatic data processing.

The increased activity of the IEC is reflected, says the report, in new work on electrical equipment of machine tools and instruments for measurement of radiation; in the electronics field the growth of work had necessitated a reorganisation of the structure of the committees and a new committee on cables and wave guides had been set up. A special committee on safety regulations, set up three years ago, had completed its work.

The report reviews progress made at the last Commonwealth standards conference in Ottawa and refers to newly established standards organisations in the Rhodesian Federation and in the West Indies. Steady progress is recorded in the work of the B.S.I. agency which "approves" electrical products destined for export to Canada.

Copies of the report are available from the British Standards Institution, Sales Branch, 2 Park Street, London, W.1, price 7s. 6d. (Postage will be charged extra to non-subscribers).

## BRITISH STANDARDS

### Identification of Pipelines

**A** SOUND colour-identification scheme for pipelines is essential in countless spheres of industry. Neither safety nor efficiency is assured where labyrinths of pipes abound, their contents often enigmatic until someone—perhaps an unsuspecting maintenance engineer—becomes the victim of an accident.

Hence the importance of this revised British Standard (B.S. 1710:1960), with its recommendations for an identification colour code. It applies to pipelines in buildings, industrial installations and on water and land transport.

British Standard ground colours are specified to distinguish between the various classes of contents—white for air, canary yellow for town gas, dark grey for chemicals and so on. Colour bands are specified to individualise within classes; for example, a pipe containing butane would be dark grey, with a red band; one containing carbon monoxide would be dark grey with red and yellow bands. Lettering is recommended in certain instances.

The committee of experts responsible for the standard have not overlooked the needs of the atomic age. Hazard markings have been introduced for use when the contents of a pipe may be radioactive. A pipe with a light orange ground and black diagonal crossed stripes, for example, would indicate the presence of heavily radioactive hazards.

The 16-page standard contains five pages of fully annotated colour diagrams. Price 6s.

Copies of this British Standard may be obtained from the British Standards Institution, Sales Branch, 2 Park Street, London, W.1.

## NEW SERVICE FOR INDUSTRY

Reductions in the starting-up costs of new building operations are a feature of a service recently introduced by management consultants. Personnel Administration, Ltd., London, S.W.1.

By expanding and co-ordinating their existing range of techniques available to management, P.A. are now providing a comprehensive service covering all aspects of the planning and installation of a new project. This covers an initial detailed study to determine the precise requirements of the project through to its completion and subsequent operation.

## FOR THE DIARY

**Sept. 11**  
International Trade Fair at Brno, Czechoslovakia. Sept. 11-25.

**Sept. 13**  
Eighth annual residential study course arranged by the South-Western District of the Institution of Municipal Engineers. Dillington House, Ilminster, Somerset. Sept. 13-15.

Annual conference of the Association of Public Lighting Engineers, Folkestone. Sept. 13-16.

Inaugural meeting of the Manchester branch of the Contractors' Mechanical Plant Engineers, Nags Head Hotel, Jackson Road, Deansgate, Manchester, 2. 7.30 p.m.

**Sept. 14**  
Meeting of the Glasgow branch of the Contractors' Mechanical Plant Engineers, Mores' Hotel, India Street, Glasgow. 7.15 p.m. Film show.

Meeting of the Western Branch of the Institution of Plant Engineers, Royal Clarence Hotel, Exeter. 7 p.m. Film and talk on the construction of the M.1 Motorway.

**Sept. 15.**  
Yorkshire District of the Institution of Municipal Engineers. Associate Members and Students Section meeting at Tadcaster, including visits to new sewerage scheme and sewage works.

**Sept. 16**  
Meeting of the Birmingham branch of the Institution of Plant Engineers, Imperial Hotel, Birmingham. 7.30 p.m. Mobile Plant Discussion Group.

Annual meeting of the North Western District of the Institution of Municipal Engineers at the Town Hall, Rochdale, 11.30 a.m.

**Sept. 21**  
Conference of the British Waterworks Association, Edinburgh. Sept. 21-23. Factory Equipment Exhibition, Belle Vue, Manchester. Sept. 21-Oct. 1.

**Sept. 22**  
Meeting of the Yorkshire branch of the Contractors' Mechanical Plant Engineers, Metropole Hotel, Leeds. 7.30 p.m. Ladies' Night.

**Sept. 23**  
Commercial Motor Show, Earl's Court, London, Sept. 23—Oct. 1.

**Sept. 27**  
Meeting of the Mid-Southern branch of the Contractors' Mechanical Plant Engineers, The George Hotel, King Street, Reading. 7.30 p.m. Film show.

**Sept. 30**  
Meeting of the Metropolitan and Southern branch of the Institute of Sewage Purification, Friends House, Euston Road, London, N.W.1. 6.30 p.m. Discussion—New and

Pending Legislation—introduced by J. L. Spiller.

Southern District of the Institution of Municipal Engineers. Lunch and meeting at Swindon.

**Oct. 3**  
Conference of the institute of Quarrying, North British Hotel, Edinburgh, Oct. 3-6.

**Oct. 5**  
Meeting of the North West branch of the Contractors' Mechanical Plant Engineers, Kirkby Executive Club, Liverpool. 7.30 p.m. Ladies' Night.

**Oct. 6**  
Convention on Parking arranged by the Institution of Municipal Engineers at Central Hall, London, 10 a.m.

**Oct. 10**  
Meeting of London branch of the Institution of Plant Engineers, at the Royal Society of Arts, John Adam Street, London, W.C.2, at 7 p.m. An international Paper "Plant Engineering on the Continent."

**Oct. 11**  
Building Trades Exhibition, City Hall, Deansgate, Manchester, Oct. 11-22. Annual dinner of the Contractors' Plant Association, Dorchester Hotel, London. 7.30 p.m.

Meeting of the Birmingham branch of the Institution of Plant Engineers, Hotel Leofric, Coventry, at 7.30 p.m. Talk on "Modern Air Compressors and Equipment."

## Trade Section

### BLAW KNOX'S LATEST "CLEANLINE" 5/3½T CONCRETE MIXER

A NEW "Cleanline" 5/3½T concrete mixer has been introduced by Blaw Knox, Ltd., 94 Brompton Road, London, S.W.3.

Improvements incorporated in this latest model include a new canopy which completely encloses and protects the engine and chain drive to the main drive shaft.



"Cleanline" 5/3½T mixer

The hinged opening of the canopy gives ready access to the engine for maintenance and servicing.

The overall height of the mixer has been lowered by 5in. enabling the drum charging height to be reduced by 4½in. Lower height, the manufacturers point out, also gives lower centre of gravity ensuring greater stability in site movement. The pivoted front axle is also an important stability feature.

A new engine, the Lister LD1 diesel, is supplied as standard, with the Lister D1 petrol engine as alternative. These power units develop 1½ b.h.p. at 750 r.p.m.

#### Specification

Power unit, 1½-h.p. air-cooled diesel or petrol engine; drum capacity per batch (dry), 5 cu. ft.; drum capacity per batch (wet), 3½ cu. ft. plus 10 per cent. overload; speed of drum, 21 r.p.m.; drum opening, 19in.; number of blades, three; charge height, 3ft. 9½in.; discharge height, 1ft. 8½in.; wheels—number—four, type—steel, size—12in. diameter by 3in. and 24in. diameter by 3in.

Overall dimensions—height (drum vertical), 5ft. 5in.; width, 3ft. 4½in.; length, 6ft. 4½in.

Weight—mixer fitted with diesel engine, 1,204lb.

Two-wheel model also available, fitted with either two steel wheels 24in. diameter by 3in. or two wheels with 16 by 4 pneumatic tyres.

### LUMENATED CEILINGS INTRODUCE TWO NEW MODULES

Two additions to the range of three-dimensionally patterned modules available for use in the Luminated Module lighting system are announced by Luminated Ceilings, Ltd., Alliance House, Caxton Street, London, S.W.1.

The two new patterns have an angular fluted appearance, achieved by a series of wedge-shaped formations across the module. Of the two types available with this pattern, one (type S9) has the fluting running from side to side, while the other (type S10) has the fluting obliquely, on a corner to corner axis.

Both patterns can be supplied for use in either the 2ft. or 3ft. version of the Luminated Module lighting system.

### INCREASE IN SYNTHETIC RUBBER OUTPUT

SINCE the £6m. plant of International Synthetic Rubber Co., Ltd., was opened at Hythe, near Southampton, two years ago (*The Contract Journal*, Oct. 30, 1958), the volume of synthetic rubber produced there has doubled. The company are now the biggest producers of synthetic rubber in Europe and expect soon to expand their production to 90,000 tons a year.

In the two years since the plant came on stream about £800,000 has been spent on construction work to expand production, and four months ago a new plant for the production of S.B.R. (Styrene Butadiene Rubber) latex was brought into commission. United Kingdom consumption of this material in 1959 was under 1,000 tons, but it is estimated that consumption will be running at the rate of more than 5,000 tons by the end of 1960.

Consumption of all synthetic rubber in Britain increased seven-fold in the period 1950-55, and in the two years 1956-57 more than trebled again. The I.S.R. plant now produces nearly a third of the total U.K. demand for rubber, including natural rubber, and the company claim that the average possible dollar saving on imported synthetic rubber resulting from their production is more than \$30m.

A technical research department has been set up to advise the many industries which use the material. Part of its work in the civil engineering field has been on rail chair pads or shock absorbers for rail sleepers.

The mechanical engineering work for the new plant at Hythe has been carried out by The Power-Gas Corporation, Ltd., Stockton, and the civil engineering work by John Laing and Son, Ltd., London, N.W.7.

### STAFFA 101 SECTION BENDER

A hand-operated section bender, the Staffa 101, claimed to be capable of work normally carried out by power-operated machines, has been introduced by Chamberlain Industries, Ltd., Staffa Works, Argall Avenue, London, E.10.

With the forming blocks and dies available, angles up to 2½in. by 2½in. by 5/16in.,



Bender fitted on steel pedestal

flat bars up to 4in. by ½in., gas pipe up to 2in. n.b., and bar up to 1½in. diameter, can be bent cold. The machine can also produce eyebolts, coils, sharp bends and various types of architectural metal work. Special tools can be provided for bending extruded sections.

Ordinarily, the machine is bolted direct to a bench, but a steel pedestal is available with storage provision for the various formers, blocks and pins.

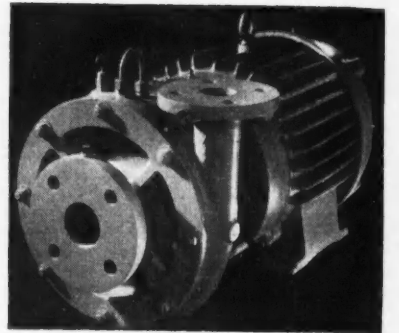
All tools are immediately interchangeable without the use of spanners.

### NEW CENTRIFUGAL PUMP RANGE

AN entirely new range of centrifugal pumps is being marketed by Arthur Lyon and Co. (Engineers), Ltd., 6 Carlos Place, London, W.1.

Known as the Alcon Thames range, the pumps are single stage centrifugal models from 1in. to 5in. Performance is to B.S.S. 2613 and draft specification A(ELE)978.

Maximum pumping temperature is 225 degrees F, and the allowable suction pressure is 30 p.s.i. Maximum total suction lift at maximum capacity for each pump, and including all pipe and valve losses, is



Alcon Thames range pump, 1½in.

15ft. Higher total suction lifts up to 18ft. can be obtained at the lower capacities for each pump.

The casing is of close grained cast-iron, with horizontal or vertical discharge, as required, and the impeller, impeller rings and gland are of gunmetal. Special insulation to exclude moisture is used on the 3-phase 50-cycle induction type stator.

The range can be offered suitable for belt drives, and alternative prime movers are petrol or diesel engine.

### A.E.I. STREET LANTERN STYLES

New lantern styles for fluorescent and linear sodium lamps, as part of the Siemens Ediswan Kuwait fluorescent unitary street lighting system, will be shown for the first time on the stand of Associated Electrical Industries, Ltd., at the forthcoming Association of Public Lighting Engineers' Conference and Exhibition at Folkestone.

A four-arm head for the 5ft. Kuwait and 4ft. Court lanterns has been designed to be suitable for central mounting on dual carriageways and for parade lighting. The heads are supplied to socket into 4½in. or 5in. outside diameter steel poles, or to fit 4in. by 6in. spigots, and lanterns accommodate up to 16 tubes. In addition, 1½in. B.S.P. side-entry heads are now available for the 3ft. Carpenter and 2ft. Crawley fluorescent tube lanterns and these, too, will be shown.

Another linear sodium lantern, the Oline, for use with one or two 36in. linear sodium lamps, which has been available as a side-entry unit, will be seen on the stand in its new cut-off lighting version. Further exhibits by the company will include the Osprey 3ft. lantern, which houses the new 3ft. linear sodium lamp, and a new 25ft. timber column, topped by a four-arm fluorescent lantern.

### NON-SLIP, HEAVY-DUTY FLOOR TILES

Production of new hydraulically pressed, non-slip, heavy-duty, textured or smooth-finished, Granazzo floor tiles, has been announced by Jaconello, Ltd., Central Avenue, West Molesey, Surrey.

Priced at 14s. 6d. per sq. yd., the tiles are being manufactured 16in. by 16in. by 1½in. thick and are claimed to be entirely free from lifting, breaking up or dusting.



## Trade Section

## ARMSTRONG WHITWORTH MANUFACTURE FRENCH COMPACTORS

**THREE** models in the French range of Albaret pneumatic-tyred compaction rollers are now being manufactured in this country by Armstrong Whitworth (Metal Industries), Ltd., Close Works, Gateshead, Co. Durham. The first machine will be completed in the near future.

A number of advantages are claimed for the machines, as opposed to conventional steel-rimmed rolling, mainly in the ability of the wheels to reach hollows, eliminate hard spots, and achieve uniform compaction and density to a high degree.

Smallest of the range, the Autopactor is a 15-ton laden, 7-ton unladen, seven-wheel automotive compaction roller featuring Isostatic suspension and power assisted steering. Ballast material is sand and cast-iron slabs.

Powered by a Ford 6D water-cooled diesel engine developing 86 b.h.p. on a 12-hour rating, and with standard electric starting, the machine has four forward and four reverse speeds, from 2.5 m.p.h. to 12.5 m.p.h., through a fluid coupling.

Maximum rolled width is 77in., and maximum wheel load is slightly over two tons of each of the smooth tyres.

The frame is a one-piece welded structure bridging and supporting a large ballast box secured by bolts. The centre of gravity of the load is thus kept very low and is situated so that weight distribution between the two rows of wheels is exactly in the ratio (4 to 3) of their numbers.

Steering is by means of a king post, articulated to a rocking bolster, supported in turn on the offside by a pair of wheels on a short oscillating axle and, on the near-side by a single wheel rotating on a fixed trunnion. The four rear driving wheels are fitted two by two to a pair of driving axles, chain driven in a totally enclosed oil bath.

A feature of the machine is the three-point Isostatic suspension, which ensures that regardless of soil contours, the wheel loads remain equal, giving uniform compaction. The rocking bolster axis provides the front point and the two driving axles those at the rear. An oscillating coupling ensures an undistorted totally enclosed oil bath chain drive; driving sprocket and driven chain wheel remain strictly in line even when the axle rocks. Equal load distribution between the rear wheels is unaffected by driving torque. Adjustable stops limit rear axle oscillation or can suppress it for special work.

### The Isopactor

Also featuring Isostatic suspension, the Isopactor is a 22-ton laden, 12-ton unladen, nine-wheel roller, with five front wheels on hydraulically interconnected rams, allowing such dual level work as trench compaction and road widening.

It is powered by the same unit as the Autopactor, and with the same number of forward and reverse speeds, is capable of 8.8 m.p.h. in fourth gear.

Maximum rolled width is 90in. and the maximum wheel load is 2.45 tons on each tyre. Inflation pressures varying from 25 p.s.i. up to 140 p.s.i. allow, as with the Autopactor, both base-formation compaction and surface rolling.

Positive, mechanical, hydraulic-assisted

steering is a feature of the machine. Pivoting of wheels and turning of steering hand-wheels are in direct ratio as in a motor car. Grid-type steering permits differential cornering angles on all five front wheels, eliminating wheel skid and consequent disturbance of the soil surface. Vertical movement of these five wheels allows a total difference in elevation of any two wheels difference in elevation of any two wheel of 16in.

Hydraulic suspension controls are operated by the driver, and enable the



Autopactor compacting bunter sandstone on Doncaster Motorway

chassis to be raised or lowered at will. The same control system aids the speedy loading or unloading of cast-iron ballast slabs, and allows differential adjustment of right or left groups of wheels for trench compaction to a depth of 16in.

Standard equipment on both vehicles includes a small motorised air compressor for tyre inflation, horn, screen wiper and

spare tyre, as well as normal lights and accessories required on the road.

### Towed Compactor

The third vehicle in the range is the C.11 towed compactor, weighing 45 tons laden, and consisting of a rigid body supported in the centre by a line of four wheels with giant tyres. Designed to be hauled or pushed by a 150-h.p. tractor unit, the compactor is intended for the deep compaction of mass earthworks, such as earth dams, runways, and highways.

Each wheel is semi-enclosed in an independent box-shape member, called the rocker, and these are located side by side, allowing only vertical movements, pivoting to the main body by means of transverse bearings and rocking pins. The rockers are connected in pairs by means of two powerful steel wire ropes. These ropes run under pulleys which are free to rotate around inclined pivots fixed to the main body.

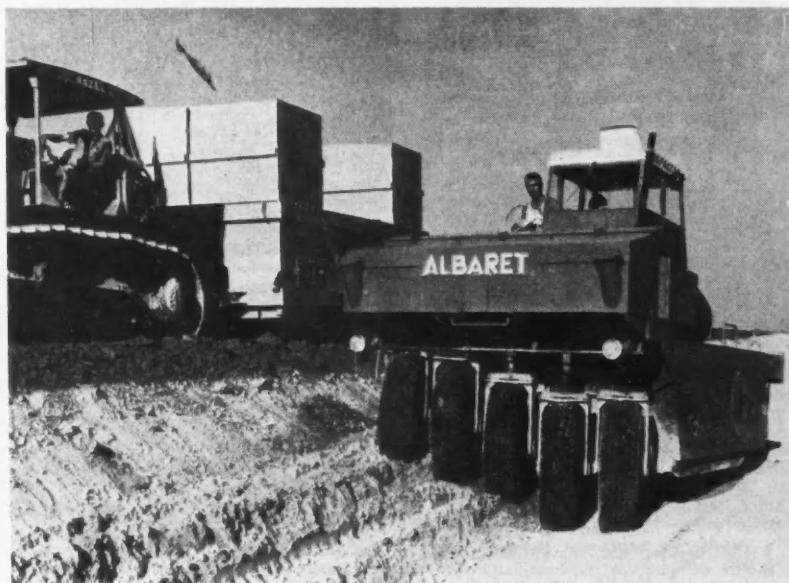
When running over uneven ground, the specially constructed wheels follow every contour but remain perfectly upright. The steel wire rope connecting two adjacent rockers is equally stressed at all points, and therefore maintains absolutely equal loads on associated wheels, whatever the irregularities of the soil in surface or in bearing capacity.

Each rocker is fitted with two rope terminal pegs. Hitching the ropes to various pegs permits of adjustment for ground clearance, and the height of the drawbar as required. It also enables any of the wheels to be set lower than their neighbours for carrying out compaction work in a trench or on road widening, whilst the body still remains level and the load evenly distributed.

### Sales Rights

Arrangements have been completed for Armstrong Whitworth (Metal Industries), Ltd., to have the sole rights of manufacture and sales for Albaret machines in the United Kingdom and Eire, Sweden, Norway, Denmark, Canada, British West Indies, British Guiana, Nigeria, Ghana, Sierra Leone, Gambia, Kenya, Tanganyika, Uganda and British Somaliland. The company will also be selling in India, Burma, Malaya and Singapore, but these rights are non-exclusive.

The agreement also covers sales and service arrangements for other products of the French company, not as yet to be made in Britain, which includes conventional diesel rollers, sheepfoot rollers, turnfoot rollers, the side-roll light sports-field roller, together with a wide range of pneumatic-tyred towed compactors in varying sizes and weights up to 100 tons



Isopactor, with 100-ton towed compactor in background, at Le Bourget airport

## Trade Section

## NEW COMPANIES

*The undermentioned particulars of new companies recently registered are taken from the daily register compiled by Jordan and Sons, Ltd., company registration agents, 116 Chancery Lane, London, W.C.2:—*

R. Martin and Son (Bridgwater), Ltd., St. Clouds, Penlea Avenue, Bridgwater, Som., builders. £1,000. Directors: Raymond Martin and Beatrice M. Martin, St. Clouds, Penlea Avenue, Bridgwater, Som.

A. A. Cossey and Co., Ltd., 3 Beacon Heath, Whipton, Exeter, builders and public works contractors. £2,000. Directors: Arthur A. Cossey and Mrs. A. N. Cossey, 3 Beacon Heath, Whipton, Exeter.

Oakmere (Builders), Ltd., 92 Heath Street, N.W.3. £100. Directors: James S. Wade, Warren Park, Hatfield, Herts.; Derek R. Ward, Timberscombe, Dixons Hill Road, North Mymms, Herts.

East Berks Builders, Ltd., 4 Marlow Road, Maidenhead, Berks. £100. Directors: John S. Dodwell, Greenway, Windsor Road, Maidenhead; Michael Neary, Pineslea, Ellington Road, Taplow, Bucks.

Boardley Builders, Ltd., Dorothea House, Farndale Close, Great Ayton, Yorks. £500. Permanent directors: Randolph A. Gray, 47 Cleveland Avenue, Stokesley, Yorks. (chairman); Robt. S. H. Johnson, 49 Cleveland Avenue, Stokesley, Yorks.; James V. Boardley, Dorothea House, Farndale Close, Great Ayton, Yorks.

Harold W. Betteridge, Ltd., Scotland Lane, Burton Overy, building contractors, £3,000. Permanent directors: Harold W. Betteridge and Joyce L. Betteridge, Sunnyside, Scotland Lane, Burton Overy.

Leith Watson, Ltd., 149a Central Road, Worcester Park, Surrey, builders. £1,000. Permanent directors: Geo. D. W. Watson and Mrs. Jean M. Watson, 52 Torrington Way, Morden, Surrey.

May and Castle, Ltd., Forge Yard, Bradstone Road, Folkestone, Kent, builders. £1,000. Directors: Charles H. Castle, 14 Greebfield Road, Folkestone; James H. Castle, 99 Wood Avenue, Folkestone; B. W. Barr, 33a Harvey Street, Folkestone.

R. Saunders and Co. (Woking), Ltd., 7 Clarence Avenue, Woking, Surrey, demolition and excavation contractors. £1,000. Directors: Robert Saunders, 7 Clarence Avenue, Woking, Surrey; Kenneth J. Hunt, 178 Whittington Road, Hutton, Brentwood, Essex.

Nickolls Ready Mixed Concrete, Ltd., 65 Cheriton High Street, Folkestone. £10,000. Directors: Reginald C. W. Nickolls, 12 Turketel Road, Folkestone; John W. Nickolls, 15 Wells Road, Folkestone; Lilian F. Nickolls, 98 Stade Street, Hythe.

Glynneath Plant Hire, Ltd., Clunemore, Pont-neath-Vaughan, Neath, Glam. £1,000. Directors: Michael Cuddy, Mrs. Ellen Cuddy and Patrick Cuddy, all of Clunemore, Pont-neath-Vaughan, Neath, Glam.

Goodridge, Ltd., 26 Melbourne Street, Plymouth, builders. £100. Directors: Kenneth V. Goodridge and Doris M. Goodridge, 68 Lipson Road, Plymouth.

Warwick Bishop and Co., Ltd., Posbrook Cottage, Posbrook Lane, Titchfield, Hants, builders. £2,500. Directors: Arthur R. Merritt, Posbrook Cottage, Posbrook Lane, Titchfield, Hants; Warwick Bishop, Trevoise, Brownwick Lane, Titchfield, Hants; Mrs. Phyllis M. Merritt and Mrs. Winnifred E. Bishop.

Ashton and McCaul, Ltd., 33 Gas Street, Leigh, Lancs., builders and contractors. £5,000. Directors: Eric Ashton, 208 Hope Carr Road, Leigh, Lancs.; John McCaul, 4 Chestnut Avenue, Leigh, Lancs.; Joseph McCaul, 76a Sydney Avenue, Leigh, Lancs.

Henry J. Rogers and Partners, Ltd., builders and contractors. £4,000. Directors: Henry J. Rogers, Green End, Comberton, Cambs. (managing director); Vernon Maslin, 13 Nelson Street, King's Lynn; Victor N. Chapman, Frank D. Ward and Hedley G. Tyler.

Hilsdon and Williams (Oxford), Ltd., builders. £2,000. Directors: Philip J. Hilsdon, 19 Crescent Road, Oxford; John H. Williams, The Bungalow, Long Hanborough, Oxon; Michael J. Ayres, 2 Chapel Yard, Eynsham, Oxon.

Frank Thomas (Plant), Co., Ltd., plant hirers. £100. Directors: Frank Thomas and Vera Thomas, Flat 3, Beech House, 76 London Road, Redhill, Surrey.

Davies Bros. (Harrow), Ltd., builders. £100. Directors: Eddie Davies, 15 Whitefriars Drive, Harrow Weald, Middx.; Wm. E. Davies, 14 Hunters Hill, Eastcote, Middx.

J. Kelly and Son (Contractors), Ltd., 55 Belsize Lane, N.W.3, builders. £500. Directors: Jeremiah Kelly and Annie J. Kelly, 51 Dyne Road, N.W.6.

Tayrock, Ltd., Marlovian House, Seymour Plain, Marlow, Bucks., civil engineers and contractors. £2,000. Directors: Robert H. Rockell and Edith M. Rockell, Marlovian House, Seymour Plain, Marlow, Bucks.

Abcon Building Co., Ltd., 6 Hobart Place, S.W.1. £100. Directors: to be appointed by subscribers. Subscribers: Henry G. Gilbert, 5 Kenley Close, Chislehurst, Kent (chartered secretary); Dennis Langford, 193 Erith Road, Bexleyheath (accountant).

Landbeach Concrete Co., Ltd., Ely Road, Waterbeach, Cambs. £2,000. Directors: Maurice A. Dickerson, Many Gates, Hills Road, Cambridge; Reginald A. Ambrose, Westlands, Main Street, Little Eversden, Cambs.

## News from the Boardroom

**FROM** Coseley Buildings, Ltd., of Lanesfield, Wolverhampton, comes news that over the past six months the average monthly export orders have been increased by well over 100 per cent. and the prospect is that this percentage will itself be doubled by the end of the current year. Orders have come from 10 different countries including first orders ever from Libya and Spain. In Libya, buildings are being supplied to Sahara Oilfield Services of Libya, Ltd., H. K. Ferguson International Company, Libyan American Joint Services, Administration of Tripolitania and the American Overseas Petroleum Company. The Spanish order is for three industrial buildings, including a crane bay worth £18,000. The regular flow of Coseley buildings across the Atlantic is reaching impressive proportions; a recently won order in Canada, against keen American competition, was for a 176ft. long building. Exhortations to Coseley to export more seem out of place!

**NOT** such encouraging export news comes from The Tunnel Portland Cement Co., Ltd., Mr. N. M. Jensen, chairman and managing director, reports that the export market has continued to recede somewhat and there is no sign of improvement in export prices. At home, however, the favourable trend of deliveries has continued and the industry is working to capacity. The directors are confident that over a long term the demand for cement in the U.K. will continue to expand and are considering proposals to increase productive capacity and replace existing plant to conserve fuel. Plans are also being considered for improving facilities for delivering cement in bulk by road, rail and sea. Over the next few years these proposals will amount to between £2½m. and £3m.

**MORE** news of cement comes from Sir Halford Reddish, chairman and managing director of Rugby Portland Cement Company. The company's deliveries of cement to the home market for the first eight months of this year were substantially in excess of those for the corresponding period of 1959 and the increase in demand is expected to continue. Announcing this recently, Sir Halford said the company's plant at Southam in Warwickshire is to be extended by an additional rotary kiln with a productive capacity of some 180,000 tons per annum. The new kiln should be in production in about 12 months' time.

**THE** easing of credit restrictions in 1959 and the marketing of new and improved models helped Bray Construction Equipment, Ltd., to set up another sales record during the year ended March 31, 1960. Announcing this, Lord Aberconway states that through their world-wide selling organisation, Bray enjoy a very large export market. Arrangements have been made which should ensure continuity of sales on the Continent and there are good prospects that sales to that area will increase still further.

**ANOTHER** construction equipment manufacturer enjoying success in Europe is J. C. Bamford (Excavators), Ltd. Following a big increase in sales of excavators and loaders throughout the Continent they have formed a new company in Switzerland which will control all export sales, carry spares and provide service for all J.C.B. equipment in Europe. Named J. C. Bamford (Exports) S.A., the company have their head offices at 2 Avenue de la Rasude, Lausanne, Vaud.



Aveling-Barford, Ltd., have just despatched the first half of an order for ten SL270 shuttle dumpers for the Brazilian Army. Photograph shows the five machines just prior to leaving the Grantham factory. The order came through the manufacturer's distributor in Rio De Janeiro, Companhia Auxiliar De Viacao E Obras

## Trade Section

## PRESSURE TEST ON RESIN-COATED CONCRETE PIPES

AFTER five years of research, the Deckon pipe—a concrete pipe of normal manufacture coated in resin and fibre-glass—is now being produced in quantity by Sharp, Jones and Co., Ltd.

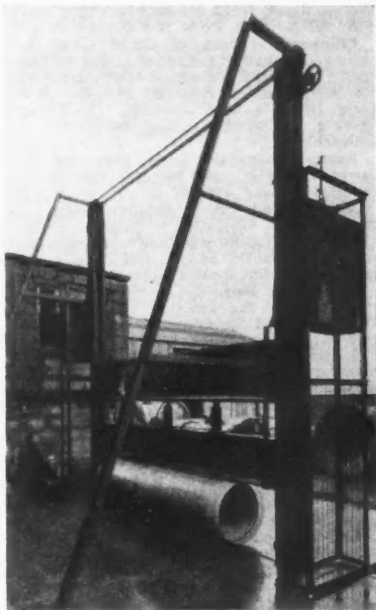
This follows the recent announcement by the Ministry that the use of this type of pipe for underground mains would be approved for loan sanction. The first use of the new piping will be at Hunstanton, where work is to begin soon on a 224yd. length of sewer.

Recently guests at the manufacturers' Parkstone Works, Poole, Dorset, saw the Deckon pipe being made and tested under load. The Deckon, described in *The Contract Journal* of April 7, 1960, comprises a spun concrete pipe without any steel reinforcement which, for underground purposes, is protected against sulphates and given structural strength by an application of polyester resin reinforced with fibre-glass.

It is competitive in strength and price with reinforced concrete pipe, the vital difference being that the cracking caused under heavy loading is an essential part of the design of the Deckon pipe. In this pipe the concrete is merely a prop for the resin and fibre-glass casing, so that while the concrete cracks under load the casing will be deformed but the pipe will remain watertight.

To demonstrate this the makers placed a section of 18in. diameter pipe on a K.L. pressure testing machine and tested it to destruction. The first cracking appeared at the crown and invert at 2,400 p.s.i. pressure, but complete failure did not occur until 16,800lb. had been attained. The casing in this instance contained 15 windings of 12 end glass roving.

The pipe's flexibility was also shown during this test. When a pressure of 6,000 p.s.i. was released the cracks closed and the pipe recovered its shape. This feature allows the pipe to deal with wide and sudden differential stresses.



A 24in. dia. pipe under load test

## ROAD MACHINES INTRODUCE NEW RANGE OF DUMPERS

AFTER many months of development and testing, Road Machines (Drayton), Ltd., West Drayton, Middlesex, introduce this month three new dumpers—the RoadMac 15cwt. capacity "Whelp," the 22½cwt. "Cub" and the 30cwt. "Lioness."

Special attention has been paid to manoeuvrability, the turning radius of the 15cwt. and 22½cwt. machines being 7ft. 9in., and that of the 30cwt. machine 10ft.

The skips on all three dumpers have been specially designed to give an instantaneous clean discharge, and the loading heights have been kept to a minimum for ease of charging by mixer, by hand or mechanically.

The "Whelp" has a heaped capacity of 22 cu. ft.—struck 18 cu. ft., the "Cub" heaped 27 cu. ft.—struck 22 cu. ft. and the "Lioness" heaped 36 cu. ft.—struck 28 cu. ft.

The steering axles are centrally pivoted to give maximum articulation and this, together with correct weight distribution, ensures maximum traction under all conditions, whether laden or unladen, it is stated.

The "Whelp" is powered by a Petter AVA1 6 b.h.p. engine, the "Cub" by a Petter PH1 7½ b.h.p. engine and the "Lioness" features a Petter AVA2 12 b.h.p. engine. Each machine has three forward gears plus reverse, in each case the third gear giving 12 m.p.h.



"Cub" 22½cwt. dumper

## AVELING-BARFORD'S NEW 5/8-TON ROLLERS

AVELING - BARFORD, LTD., announce that a new series "GB" roller is now in production at their Grantham factory.

This new series, which offers two models, has been introduced mainly to keep abreast of new developments and will replace the existing light/medium roller. The two models, known as the "GBV" and "GBU," cover the weight range from five to eight tons. Both machines are ballastable by sand and water.

One of the most important improvements in the design of these light/medium rollers is the installation of the Perkins P3/144 diesel engine which is fitted as standard with electric starting, giving 28 b.h.p. at 1,500 r.p.m.

This considerable amount of power, coupled with an improved weight distribution, allows both machines to be fitted with a resilient scarifier which hitherto has been confined to the heavier units of the G series range. Also incorporated is the Aveling-Barford patent pressure balancing device which, in conjunction with sand or water ballast in the rolls, enables the roller weight to be concentrated at the rear of the machine for compaction and scarifying, or spread out so that pressures front and rear are equal for surface finishing. A comprehensive list of extras are available with the new series including: fully enclosed cab, awning and curtains, water tanks and sprinklers and electric lighting.

## FLUORESCENT LAMP GIVES NATURAL COLOURS

A Mazda fluorescent lamp, claimed to give the nearest illumination to daylight yet achieved, has been introduced by A.E.I. Lamp and Lighting Co., Ltd., Melton Road, Leicester.

Called the "Kolor-rite, the lamp, state the manufacturers, has been exhaustively tested by colour experts and its light has been found to accurately render the colours of all types of goods and commodities, including foods and difficult textiles.

Available as a 5ft. 80-W lamp with B.C. or Bi-pin cap and 4ft. 40-W lamp with Bi-pin cap only, the tube has an estimated life of 5,000 hours with an average output of 2,560 and 1,360 lumens respectively.

## SINTER PLANT ORDER

Head Wrightson Iron and Steel Works Engineering, Ltd., have received an order from Appleby-Frodingham Steel Company for the design and construction of further extensions to their ore preparation and sinter plants.

This order covers the supply of four additional sinter machines 8ft. wide by 168ft. long, together with the engineering of the complete plant, and has a total value of approximately £1½m.

It is anticipated that the new machines will be completely installed and operating at full capacity by the end of 1962. They will be fabricated at Head Wrightson's Thornaby Works.

## KOEHRING CONSTRUCTION EQUIPMENT SHOW

More than 40 pieces of construction equipment will be displayed and demonstrated under job conditions at Koehring Company's 1960 Construction Equipment Show, to be held at the company's proving grounds near Waukesha, Wisconsin, U.S.A.

About 2,000 contractors and other equipment users from all over the United States and from a number of other countries, as well as several hundred equipment distributors' representatives, are expected to attend the show, which will be held in two sessions, September 19 and 20, and 22 and 23.



# Current Constructional Activities

## PROJECTS

## CONTRACTS

## AWARDS

THIS editorial feature provides readers with a comprehensive news service covering forthcoming private and public construction work. Commencing on this page information is given concerning future projects followed by details of tenders being invited. In the third section will be found news of tenders recommended for acceptance, tenders accepted and contracts awarded. Attention is also drawn to the advertisements covering contracts and appointments appearing in the front part of the *Journal*.

### BUILDING AND DECORATING (See also Housing Schemes)

**Accrington, Lancs.**—B.C. recommended to approve outline application for demolition and rebuilding at 5 Union Street for Barclays Bank, Ltd., Blackburn Road.

B.C. recommended to apply for sanction to borrow £13,370 for phase II of reorganisation of Town Hall.

**Acton, Middx.**—B.C. have granted permission for the erection of a new warehouse and offices at Acton Lane, for Augeners, Ltd.

**Alston, Cumb.**—Ministry have approved a scheme for additions to Alston Cottage Hospital, for Newcastle upon Tyne Regional Hospital Board, Benfield Road, Newcastle upon Tyne. The Board's chief architect is P. H. Knighton. Estimated cost £4,500.

**Basingstoke, Hants.**—C.C. recommended to approve plan for a car showroom and offices on site of 5-13 Chapel Street for F. Smith (Basingstoke), Ltd., Station Hill.

**Blackburn, Lancs.**—Y.M.C.A. have launched an appeal for £35,000 for the erection of a residential hostel.

Minister to hold an inquiry on Nov. 15 into B.C.'s application for permission to develop the Penny Street area as a central market.

**Bolton, Lancs.**—B.C. recommended to approve plans for the erection of an old people's hostel at Laburnum Lodge, Brightmet Fold Lane.

**Bolton, Lancs.**—Ministry have approved scheme for the modernisation of St. Thomas's School, Halliwell. Estimated cost £22,000.

**Brandon, Dur.**—Workshop, stores and offices are proposed at Pit House Colliery for the Durham Divisional Coal Board (No. 5 Area), Beamish Hall, Stanley, Dur.

**Bromsgrove, Worcs.**—M.O.W. preparing plans for the erection of a prison at Stoke Heath airfield.

**Caernarvonshire.**—Ferodo, Ltd., Chapel-en-le-Frith, Derbys., have submitted an application to C.C. for planning permission to erect a factory at Griffiths Crossing, near Caernarvon.

**Chatham, Kent.**—B.C. recommended to approve layout of extension to the central library, New Road, to provide a new junior library and office accommodation.

**Consett, Dur.**—Marshall and Tweedy, 36 Blackett Street, Newcastle upon Tyne, are the architects for a proposed depot and offices at Consett for Carricks (Caterers), Ltd., Ponteland Road, Newcastle upon Tyne.

**Darlington, Dur.**—C.W.S., Ltd., Manchester, are to construct a warehouse at Aycliffe, near Darlington. Plans are by the Society's Architects' Dept.

**Durham.**—Cordingley and McIntyre, Owen-gate, Durham, are the architects for proposed extensions to office block for H. Mackay and Co., Ltd., carpet manufacturers.

Plans are being considered for the erection of R.C. Church and Presbytery at Coxhoe. The architect is D. Brown, 10 Lambton Road, Jesmond, Newcastle upon Tyne.

New headquarters and stores are proposed at Old Elvet, for the Territorial Army, and Air Forces' Association. The architects are Newrick and Blackbell, 58 John Street, Sunderland.

**Durham.**—Marshall, Sisson, Farm Hall, Godmanchester, Hants., is the architect for a new arts block at New Elvet for Durham University. Demolition work and clearance of site is expected to start in the winter.

**Ealing, Middx.**—W. S. Hattrell and Partners, architects, 21 Cleveland Place, St. James', London, S.W.1, are preparing plans for the erection of a theatre for The Questors,

Ltd. Branson and Chester, quantity surveyors, Norwich Union Chambers, Birmingham, 3. Estimated cost £50,000.

**Edinburgh.**—Blyth and Blyth, 135 George Street, Edinburgh, are the consultants for the proposed erection of three light industrial units on the site of the Waverley Rubber Works, Russel Road, for Highland Engineering, Ltd. Demolition work will commence soon.

**Edinburgh.**—Dean of Guild Court have approved plans for a diagnostic and treatment centre for mental patients at Morningside Place for South-Eastern Regional Hospital Board. John Holt, board's architect, 18 Rothesay Terrace, Edinburgh, 3. Estimated cost £500,000.

**Essex.**—South-East Essex Divisional Education Executive have included the following schemes in the 1961-62 school programme: Assembly hall, staff accommodation and toilets at Ashington Primary School, £20,000; two additional classrooms at Hawkwell Holt School, £4,150; and toilet accommodation at Stambidge School, £2,100.

**Gateshead, Dur.**—B.C. offering to lease two sites at the junction of High Street, Wrekenton and Springwell Road, for the erection of shops.

J. Mackay and Co., Ltd., mineral water manufacturers, Corporation Street, Newcastle upon Tyne, are to convert the disused Coatsworth Cinema, Coatsworth Road into soft drinks factory, garage, bottling dept., etc.

**Goole, Yorks.**—Waterways Sub-Commission of the British Transport Commission propose the erection of two new repair shops for river craft, including new machinery, overhead gantry equipment and slipways. Estimated cost £100,000.

**Great Yarmouth, Norfolk.**—B.C. have approved the leasing of land at South Denes to Birds Eye Foods, Ltd., Hesketh House, Portman Square, London, W.1, for the erection of a 10,000-ton cold store.

**Guiseborough, Yorks.**—U.D.C. being recommended to erect swimming baths. The Council's Surveyor is A. T. Pallister.

**Halifax, Yorks.**—John Mathewson, 33 Allyn Park, London, S.E.21, is the architect for the erection of new buildings at Albion Mills for John Mackintosh and Sons. Bond, Foster and Partners, 19 Hertford Street, Park Lane, London, W.1, are the quantity surveyors and Frederick S. Snow and Partners, Ross House, 144 Southwark Street, London, S.E.1, are the consulting engineers for the scheme. Estimated cost £1m.

**Haltwhistle, Northumb.**—Approval has been given to a scheme for factory extensions for Smith and Walton, Ltd., paint manufacturers.

**Harrogate, Yorks.**—Taylor, Bown and Miller, 8 Victoria Avenue, are the architects for the erection of offices, cloakrooms and extensions to the factory at Grove Park Terrace for James Coombes and Co., Ltd.

**Hemel Hempstead, Herts.**—Clifford Culpin, 39 Doughty Street, London, W.C.1, has been appointed architect for the town centre pavilion.

**Heywood, Lancs.**—B.C. recommended to submit to Ministry, for approval in principle, scheme for the erection of an assembly hall and public baths.

**Hull.**—Town Planning Committee recommended to approve plans for a telephone exchange at corner of Anne Street and Osborne Street, for M.O.W.

**Ince-in-Makerfield, Lancs.**—U.D.C. have approved planning application for headquarters and club premises at Earl Street for Higher Ince British Legion.

**Jarrow, Dur.**—J. H. Carr, Curlew Road, Jarrow, has applied for sanction to convert factory.

**Kingston-upon-Thames, Surrey.**—B.C. have approved plans for the erection of a new club house at Kingstonian's football ground in Richmond Road, for the Supporters' Association.

Co. Planning Committee have approved plans for the erection of a block of 10 lock-up garages at rear of 19 and 21 Grove Road, Surbiton, for B.C.

**Leadgate, Dur.**—Pithead baths to be built at Stoney Heap Colliery. No contracts let. Plans are by the N.C.B. Architects' Dept., 24 The Side, Newcastle upon Tyne.

**Leeds.**—Markets Committee plan a new abattoir and wholesale meat market on 40 acres of land off Pontefract Lane, and a new

wholesale fruit and vegetable market (including fish, game and poultry) nearby on a 20-acre site.

**Highland Engineering, Ltd., 11 Castle Street, Edinburgh,** have submitted to the Town Planning Committee for approval plans for a depot and offices at Limewood Approach, Seacroft.

**Lowestoft, Suffolk.**—Ministry have approved the completion of the third and fourth instalments of the Lowestoft College for Further Education in the 1962 building programme for E.C. Estimated cost £290,000.

**Luton, Beds.**—B.C. have approved plans for the demolition of the Sugar Loaf Hotel, King Street, and the erection of a seven-storey block with a ground floor shopping arcade and an underground car park on the site for Henekeys, Ltd., 22 High Holborn, London, W.C.1.

**Macclesfield, Ches.**—Ministry have granted C.C. planning permission for the erection of a fire station and an ambulance depot at Commercial Road.

**Middlesbrough, Yorks.**—Tenders are being obtained by Newcastle upon Tyne Regional Hospital Board, Benfield Road, Newcastle upon Tyne, for the erection of a department of physical medicine at Middlesbrough General Hospital. Plans are by the Board's Chief Architect, P. H. Knighton.

B.C. to proceed with scheme for aged persons' hostel at Beechwood. Tenders will be obtained before the end of the year.

**Middleton, Lancs.**—The Principal and Trustees of De Salle College hope to accept a tender in about six weeks time for extensions at the De Salle Teachers' Training College, Hopwood Hall. Architects are Reynolds and Scott, 9 Albert Square, Manchester 2; structural engineers are Pre-Stressed Concrete Associates, 171 Victoria Street, London, S.W.1; and heating and electrical engineers are S. I. Sealy and Associates, 294 Wellington Road, North Stockport.

**Nelson, Lancs.**—B.C. recommended to approve plans for proposed new sub-divisional police headquarters at Crowther Street for the County Constabulary.

**Northumberland.**—C.C. to spend £14,350 on the erection of an eight-bed annexe, building new superintendent's house, and other alterations at Ralph Allan Home, Warkworth. The scheme is included in the current year's building programme.

**Norwich.**—City Council recommended to approve the erection of a further 64 garages at various sites during this year.

**Norwich.**—Ministry to hold an inquiry into the use of Earlham golf course as a site for the new University of East Anglia.

**Nottingham.**—Broadhead and Royle, 2 Castle Place, are the architects for the renovation of the Lowdham Church of England School for the School Managers and the Southwell Diocesan Day Schools Board. Scheme only at planning stage. Estimated cost £30,000.

**Pembroke.**—B.C. have approved plans for an infants' school at Golden Lane for Co. E.C.

**Peterborough.**—C. W. Shelton, Ltd., South Street, Stanground, to erect a four-storey departmental store on the Empire Theatre site between Broadway and Park Road. H. Spencer and Partners, 28 Cumbergate, are the architects for the scheme. Work to commence shortly.

**Plymouth, Devon.**—Health and Welfare Service Committee have submitted outline application for the erection of an occupational centre for mentally handicapped adults at George Place, Stonehouse.

**Purfleet, Essex.**—Tenders will be invited later in the year, and work is expected to commence in January on major extensions to the Purfleet mill of Thames Board Mills, Ltd., estimated cost £43m. Site preparation, which is being carried out by John Laing and Son, Ltd., London, N.W.7, commenced last week. The consulting engineers are Frederick S. Snow and Partners, 144 Southwark Street, London, S.E.1.

**Rahend, Dublin, Eire.**—Kenneth Kiersey is the staff architect and Noel Dooley, Dawson House, Dawson Street, Dublin, the quantity surveyor for a drive-in bank at the junction of Howth Road and St. Assam's Road for

Bank of Ireland, College Green, Dublin. Bills of quantity are being prepared.

**St. Asaph, Flint.**—Industrial Estates Management Corporation for Wales have approved plans for the erection of a factory (to be leased to Ega Electric, Ltd., Wednesbury, Staffs.).

**Scarborough, Yorks.**—Outline plans have been approved for a retail gown shop at Westborough for Richard Shops, Ltd.

**Seaham, Dur.**—Durham Coal Board (No. 2 Area), Stockton Road, Sunderland, are to erect a medical centre at Dawdon Colliery. Alterations are proposed to the Midland Bank. The architect is William Stockdale, 73 Howard Street, North Shields.

**Sedgefield, Dur.**—Alterations are proposed to Ferryhill Workmen's Club to plans by G. T. Brown and Son, 14 Grange Terrace, Stockton Road, Sunderland.

**Southport, Lancs.**—B.C. recommended to prepare plans for improvements to West Hill, 6-8 Lord Street West, to provide accommodation for health purposes.

**South Shields, Dur.**—B.C.'s scheme for community centre, branch library and clinic at Boldon Lane is out to tender.

**Spennorth, Yorks.**—B.C. propose the modernisation of 615 per-war Council houses. Ministry have approved in principle B.C.'s scheme for an enclosed market on the Palace Cinema site, Albion Street, Cleckheaton. Estimated cost £30,000.

**Stockton-on-Tees, Dur.**—Plans are being considered for the erection of a tyre depot at Clarence Row for J. Briggs and Son, Leeds. The architect is J. S. Houghton, 57 High Street, Stockton-on-Tees.

B.C. to proceed with the erection of six shops at Redhill Road, Roseworth, to plans by the Borough Architect.

**Sunderland, Dur.**—B.C. recommended to construct a fire station in Holborn Road.

**Sunderland, Dur.**—Tenders have been invited for site preparation work for the erection of a factory on the north bank of the River Wear, for Hepworth and Grandage, Ltd., St. Johns Works, Bradford. Newrick and Blackbell, 58 John Street, Sunderland, are the architects, and Hall and Stafford, Sunnyside Chambers, West Sunnyside, Sunderland, are the quantity surveyors for the scheme.

**Sutton Coldfield, War.**—C.C. propose scheme for the erection of a mental health training centre at Banner's Gate. Estimated cost £57,845.

**Swansea, Glam.**—F. G. Bruton and Mace, 31 Cathedral Road, Cardiff, are the architects for the erection of new service station fronting the Swansea/Llanelli and Swansea/Carmarthen main roads, for James Howell and Co., Ltd., L. C. Patterson, W. T. Seaton and Co., 11 Cathedral Road, Cardiff, are the quantity surveyors. Work is expected to commence this year.

**Tanfield, Dur.**—New premises are proposed for Tanfield Lea Workmen's Club. The architect is J. M. Angus, 3 Gallowgate, Newcastle upon Tyne.

**Tenby, Pems.**—Appeals Committee have launched an appeal for £30,000 for the renovation of St. Mary's Church.

**Thedwastre, Suffolk.**—R.D.C. considering scheme for the provision of a swimming pool in the district.

**Twickenham, Middx.**—B.C. to prepare a report on proposed erection of new central library in the grounds of York House, at junction of Richmond and Sion Roads.

B.C. recommended to approve site at High Street, Hampton Hill, between Park Road and Holly Road for provision of shopping facilities.

**Wakefield, Yorks.**—City Council have approved, in principle, scheme to demolish the existing Market Hall and build a new one on the site.

**Wanstead-Woodford, Essex.**—General Purposes Committee have approved sketches and proposals prepared by Clifford Culpin, 39 Doughty Street, London, W.C.1, the architect for the new Town Hall. Estimated cost £400,000.

**Ware, Herts.**—U.D.C. have approved the erection of a grandstand and dressing rooms at Buryfields. Estimated cost £5,000.

**Watford, Herts.**—Ley, Colbeck and Partners, 51 Bishopsgate, London, E.C.2, are the architects and V. B. Johnson and Partners, 16 King Street, Watford, the quantity surveyors for the erection of a new Y.M.C.A. Hostel at Clarendon Road, for the Watford and District Y.M.C.A. Estimated cost £100,000.

**Wheatthorpe, Herts.**—St. Albans Diocesan Authorities and the Managers of St. Helen's C. of E. Primary School have prepared draft plan for the modernisation and partial rebuilding of the school.

**Wigston, Leics.**—U.D.C. to proceed with the construction of a public swimming bath adjoining Guthlaxton Grammar School at Wigston Magna. Estimated cost £70,000 to £80,000.

**Worthing, Sussex.**—R.D.C. have granted planning permission subject to conditions for

the demolition of Muntham Court and erection on site of a crematorium for South Sussex Crematorium, Ltd., plans by Denman and Son, architects, 27 Queens Road, Brighton, 1.

#### ELECTRICAL

**Nottingham.**—City Council recommended to approve scheme for converting the old fixed-time traffic control signal lights at the junctions of King Edward Street with Huntingdon Street and Huntingdon Street with Woodborough Road, to the vehicle-actuated type. Estimated cost £3,875 and £2,260 respectively.

#### GAS AND WATER SUPPLY

**Accrington, Lancs.**—B.C. recommended to approve in principle sale of land in the vicinity of Oakfield Avenue to Burnley B.C., for the erection of a pumping station for the purpose of obtaining water from the Haweswater Aqueduct.

**Crook, Dur.**—U.D.C. is to convert 126 conservancy systems to the water carriage system, and tenders are being obtained. Plans are by the U.D.C. Public Health Inspector.

**Kerry, Eire.**—C.C. have approved the raising of a loan of £26,000 for the Rathmore water supply scheme.

**Norwich.**—City Council recommended to approve the construction of a water tower at Aylsham, estimated cost £26,000; scheme for extending the ring main from Guardian Road to Earlham Road, and along Colman Road from Earlham Road to Jessopp Road, £7,500 and £12,700, respectively.

**Witney, Oxon.**—R.D.C. to apply for sanction to borrow £4,700 for the Yelford water supply scheme.

#### HARBOURS, PIERS AND SEA DEFENCE WORKS

**Cumberland.**—C.C. to spend £60,000 on further sea defence works at Silloth. Plans are by F. L. Broughton, county engineer and surveyor.

#### HOUSING SCHEMES

**Aylesbury, Bucks.**—B.C. are preparing plans for the erection of an 11-storey block of flats at the new Oakfield estate, Tring Road.

**Banstead, Surrey.**—U.D.C. have approved scheme for the clearance of temporary bungalows at Tattenhams and the erection of permanent houses and garages on the site.

**Boldon, Dur.**—Matkin and Hawkins, Barclays Bank Chambers, Fawcett Street, Sunderland, have prepared plans for 12 houses at West Boldon, for W. C. Shields.

U.D.C. approved layout plans for 119 houses on South Bwnts estate for Sir Hedworth Williamson, 19 John Street, Sunderland.

**Brackley, Northants.**—B.C. have approved purchase land at Burwell Hill Farm for housing development.

**Chester-le-Street, Dur.**—William Leech (Builders), Ltd., St. James Street, Newcastle upon Tyne, are to erect eight detached houses on the Wentworth Park estate, Ouston.

R. Sleightholme, Ltd., builders, St. Oswin's Place, Tynemouth, are to erect 51 houses in the Vigo Lane area, Birtley.

**Croft, Yorks.**—Tenders are being obtained by the R.D.C. for the erection of 20 houses and eight garages with roads and sewers at Barton. Architect is R. Brown, 123 Victoria Road, Darlington.

**Dorking, Surrey.**—U.D.C. have approved the provision of 10 garages beneath the flats at Hampstead Road.

**Dorking, Surrey.**—U.D.C. have submitted to Co. Town and Country Planning Committee for approval plans for the erection of two point blocks of 12 storeys, each containing 48 flats and one terrace of six two-storey houses and 85 parking spaces at Goodwyns Farm development.

**Godstone, Surrey.**—R.D.C. to negotiate with J. Kent and Son, Blechingley, for the erection of 16 old people's homes at Little Common.

**Harrow, Middx.**—Planning permission has been granted for the erection of a three-storey block of 24 flats on the sites of 19-21 Gayton Road, for R. C. Watson and Co., Ltd., Watford Road.

**Hastings, Sussex.**—The Hallmark Group, 26 Regency Square, Brighton, 1, propose the erection of 150 dwellings at Old Roar Farm.

**Hoddesdon, Herts.**—U.D.C. are considering sketch plans for the erection of a six-storey block of flats at 46, 48 and 50 High Street.

**Leamington Spa, War.**—W. A. Blackburn, Ltd., Stonehouse Farm, Coventry, to convert Brookhurst at Beverley Road into seven blocks of three-storey flats and 42 lock-up garages.

**Norwich.**—City Council recommended to approve layout plans for the erection of 41 houses, six aged persons' bungalows, 20 flats, one shop and 44 garages at Heartsease estate, and 24 maisonnettes and 14 garages at Lewis Street/Howard Street clearance area during this year.

**Norwich.**—Town Planning Committee have approved layout for the Howard Close slum clearance redevelopment scheme providing for 24 dwellings and 14 garages.

**Oxford.**—City Council have approved plans for the erection of a block of three-storey houses and maisonnettes at Middle Way, off South Parade, for Barrington Capel, Ltd., 279 Banbury Road, Oxford.

**Richmond, Yorks.**—George W. Shaw, builder, Sunnycroft Avenue, Gilling Road, Richmond, is to convert the Georgian-style Hill House into separate dwellings at a cost of about £5,000, and erect a number of similar houses in the same area. The scheme will shortly be considered by the planning authorities.

**St. Neots, Hunts.**—U.D.C.'s 1961 housing programme will comprise 50 dwellings at Sandfields and Abrahams allotment sites and approximately 40 to 50 for phase 2 of Longlands extension scheme.

**South Shields, Dur.**—B.C. have approved plans by the Borough Engineer for the erection of a block of 14 shops and 12 flats and 34 houses and 43 garages at Whiteleas, South Shields. Tenders are being obtained.

**Stanley, Dur.**—U.D.C. is to negotiate for the purchase of further land at East Stanley, for proposed housing developments.

**Sunderland, Dur.**—Allen Mason and Son, Ltd., builders and contractors, Summerhill, Middle Herrington, are to erect 16 houses at Middle Herrington.

**Sunderland, Dur.**—R.D.C. to erect 12 aged persons' bungalows adjoining Norfolk Avenue, Silksworth.

**Swaffham, Norfolk.**—U.D.C. have acquired land at North Pickenham Road for housing purposes.

**Torquay, Devon.**—Toran, Ltd., Lichfield Road, Four Oaks, Sutton Coldfield, to demolish Astra House and erect 24 flats on the site.

**Watford, Herts.**—R.D.C. to prepare plans for the erection of between 60 and 70 dwellings at Bedmond High Street.

**Wellington, Salop.**—K. E. Millard and Co., Ltd., New Wolverhampton Road, Oldbury, have purchased Ketley Town Farm, Ketley, for housing development.

#### ROADS, BRIDGES AND SITE WORKS

**Birkenhead, Ches.**—B.C. have approved plans for the widening of part of New Chester Road through Lower Tranmere.

**Blackburn, Lancs.**—B.C. recommended to prepare scheme for the improvement of Old Bank Lane/Haslingden Road junction.

**Bolton, Lancs.**—B.C. recommended to apply for sanction to borrow £2,500 for the construction of roads and sewers at Horeb Street and Back View Street, Willows Lane estate; approve scheme for repairs and improvements to drainage system and resurfacing of alleyways in concrete at Market Hall basement; invite tenders for the making-up of Seaton Road, Trawden Avenue, Lawson Road, Knowles Edge Street and Back Bennetts Lane, in the Smithhills area.

**Chislehurst and Sidcup, Kent.**—U.D.C. hope to invite tenders within the next two months for the laying of roads and sewers at North Cray housing estate.

**Darlington, Dur.**—B.C. recommended to spend £19,000 on the widening of Coniscliffe Road.

**Eastbourne, Sussex.**—Ministry have approved construction of footpath in Pevensey Bay Road, improvement of junctions from triangle north of Cavendish Bridge to Bedfordwell Road, and at western junction of Bedfordwell Road and Upper Avenue. Estimated cost £2,820, £777 and £2,338, respectively.

**Heywood, Lancs.**—B.C. recommended to prepare plans for the making-up of Heywood Hall Road and Park Terrace.

**Middlesbrough, Yorks.**—Borough Engineer has prepared plans for private street works in the Highfield Road area. Estimated cost £22,000.

**Port Talbot, Glam.**—B.C. hope to invite tenders shortly for the construction of a road connecting Baglan with Aberavon Beach. Estimated cost £100,000.

**Scarborough, Yorks.**—B.C. is to borrow £23,700 for the construction of roads, sewers, and essential services for the proposed development of the Eastfield industrial estate; have approved a revised estimate prepared by the Borough Engineer amounting to £61,255 for the diversion of Scalby Road.

**Surrey.**—Ministry have approved scheme for diversion of the London-Worthing road (A.24) at Clockhouse Corner, Capel, for C.C.

#### SEWERAGE, SEWAGE AND REFUSE DISPOSAL

**Kerry, Eire.**—C.C. have approved the raising of a loan of £14,000 for the Ballyduff sewerage scheme.



**Norfolk.**—West of Ouse Internal Drainage Board propose scheme for the widening and deepening of Reed's Drain and Five Mile Drain, including the construction of four new highway bridges.

**Nottingham.**—City Council have approved scheme for the provision of a sewer to carry away the water from Wollaton Canal. Estimated cost £2,000.

**Wallsend, Northumb.**—B.C. propose the construction of 2,350yd. of sewer ranging from 15in. to 30in. diameter in the Coast Road. The consulting engineers are Waterhouse and Rounthwaite, 165 Westmorland Road, Newcastle upon Tyne.

**Wells, Som.**—Upper Axe Drainage Board have approved sewerage scheme for the parishes of Westbury-sub-Mendip and Easton, for R.D.C.

**Winsford, Ches.**—U.D.C. have approved for submission to Ministry for approval outline plans for provision of a new sewage disposal scheme including the construction of sewage purification works at Wade's Crossing. Estimated cost £470,000.

**Witney, Oxon.**—R.D.C. to apply for sanction to borrow £150,160 for the construction of the Carterton main drainage scheme.

### STREET LIGHTING

**Nottingham.**—City Council recommended to approve improved street lighting scheme for Castle Boulevard and conversion area 36, comprising 10 streets. Estimated cost £1,100 and £1,320.

## CONTRACTS

Full details of the Contracts marked \* will be found in our Advertisment Columns.

### BUILDING AND DECORATING

(See also Housing Schemes)

**Aberdeen.**—Following works involved in the construction of a swimming pool at Aberdeen Grammar School, for City Council: Excavator and reinforced concrete, excavator, mason and brick; carpenter, joiner and ironmonger; bituminous felt roofing; plumber; lath and plaster; tile and terrazzo; heating and ventilation; electrical; glazier. Applications, in writing, to the City Architect, 11 Broad Street, Aberdeen. Tenders by Oct. 3.

**Alltwalis, Carm.**—External painting, etc., Alltwalis Congregational Chapel. Documents from the secretary, T. Bowen, Maesiasaf, Alltwalis, Carmarthen. Tenders by Sept. 15.

**Alnwick, Northumb.**—Supplying and fixing of 14 new Beta No. 10 combination grates and nine tiled slab fireplaces at various houses, contract 17, 1960, for R.D.C. Documents from O. M. Farrell, engineer and surveyor, Old Court Buildings, 34 Green Batt, Alnwick. Tenders by Sept. 17.

**Alnwick, Northumb.**—Improvements to 16 flats, Lisburn Street, for U.D.C. Applications to G. Beatty, town surveyor, The Council House, Wagonway Road, Alnwick. Deposit £2 2s. Tenders by Sept. 16.

**Armagh.**—Following at Keady County Secondary Intermediate School for Co. E.C.: (a) Erection of school, school meals kitchen and construction of playing fields; (b) electrical installation; (c) heating installation; and (d) plumbing installation. Documents for (a) from W. H. Stephens and Sons, 13 Donegall Square North, Belfast, 1, or from 40 High Street, Portadown, and for (b), (c) and (d) from McCandless and Barton, consulting engineers, 6 Murray Street, Belfast, 1. Deposit £5 5s. Tenders by Oct. 10.

**Belfast.**—Alterations and extension to Blythefield Junior and Infants' School, Blythe Street, for City Council. Documents from Education Architect's Department, 40 Academy Street, Belfast, 1. Deposit £5, cheques payable to the Corporation. Tenders by Oct. 6.

**Blyth, Suffolk.**—Modernisation and installation of a small sewage plant to houses at 1-4 The Green, Chediston, for R.D.C. Applications to R. Woodhouse Beales, architect, 3 Neale Street, Ipswich, by Sept. 10. Tenders by Sept. 29.

**Bournemouth, Hants.**—Conversion of 31 Columbia Road, Ensby Park, into branch library and flat for B.C. Documents from the Borough Architect's Office, Room 106, Town Hall, Bournemouth. Deposit £1 1s. Tenders by Sept. 22.

**Bournemouth, Hants.**—Construction of Paet Road extension, West Howe estate, for B.C. Documents from Borough Engineer, Town Hall, Bournemouth. Tenders by Sept. 15.

**Bournemouth, Hants.**—Erection of the Boscombe Pier pavilion in permanent construction with superficial area of 6,500 sq. ft. approx., for B.C. Documents from Borough Architect's Office, (Room 106), Town Hall, Bournemouth. Deposit £2 2s. Tenders by Oct. 12.

**Bournemouth, Hants.**—Following sub-contract work at new Boscombe Pier pavilion, for B.C.: (1) Structural steelwork; (2) copper roofing; (3) electrical installation. Applications to the Borough Architect, Town Hall, Bournemouth. Tenders by Oct. 12.

**Caernarvon.**—Conversion of Ty Gwyn House into two separately contained housing units together with all ancillary work, for B.C. Documents from J. Isgood Williams, architect, Pant-yr-Afon, Penmaenmawr. Deposit £4 4s. Tenders by Sept. 13.

**Cardiff.**—Construction of a new county primary two-form entry school for 540 pupils at Pen-yr-Heol, Llanrumney for City Council. The school is of one- and two-storey construction with a floor area of approximately 21,607 sq. ft. Documents from City Architect's Department, Municipal Offices, Greyfriars Road, Cardiff. Deposit £2 2s. (cheques payable to the Corporation). Tenders by Sept. 29.

**Cork.**—Repairs to Bantry Technical School, for County Education Committee. Documents from E. P. O'Flynn, architect, Trinity Chambers, 60 South Mall, Cork. Deposit £5. Tenders by Sept. 14.

**Crook and Willington, Dur.**—Replacement of 126 conservancy systems to water carriage systems in private dwelling houses for U.D.C. Documents from the Public Health Inspector, Council Offices, Highfield, New Road, Crook. Deposit £2 2s., cheques payable to U.D.C. Tenders by Sept. 23.

**Croydon, Surrey.**—Modernising the sanitary accommodation at St. Michael's School, St. James' Road, for B.C. Documents from the Chief Education Officer, 19 Katharine Street, Croydon. Tenders by Sept. 27.

**Durham.**—Following for C.C.: Billingham. Whitehouse Road—erection of standard police house and garage; Bishop Auckland Hostel for Aged Persons—erection; Spennymoor Police Station—alterations to form magistrates' courts. Applications to the County Architect, South Street, Durham, by Sept. 14.

**Eccles, Lancs.**—Designs, specifications, and quotations for single-storey buildings to be used for offices by the Rating Department and the Housing Department, for B.C. Documents from the Borough Engineer and Surveyor, Town Hall Annex, Irwell Place, Eccles. Tenders by Sept. 17.

**East Linton, East Lothian.**—New fire station. Brown's Place, East Linton, for the Joint Committee of the South Eastern Fire Brigade, including the following trades: Excavator, mason and brickwork; carpenter, joiner and glazier work; plaster, cement, screeding, roughcast and floor tiling; bitumen felt roofing; slater work; plumber work; painter work; electrical work. Applications to the County Architect, County Buildings, Haddington. Tenders by Oct. 3.

**Halifax, Yorks.**—External painting of Woodside Baths for B.C. Documents from the Borough Engineer, Crossley Street, Halifax. Deposit £1, cheques payable to Corporation. Tenders by Sept. 14.

**Lancashire.**—Alterations to drill hose tower and hose repair room in traditional construction at Farnworth Fire Station, for C.C. Applications to the County Architect, P.O. Box 26, County Hall, Preston, by Sept. 12.

**\*Littleport, Cambs.**—Construction of a swimming pool, Parson's Lane, for Parish Council. Tenders by Oct. 8.

**Liverpool.**—Conversion, repairs and decorations, 42 Huxkisson Street, for City Council. Documents from City Engineer and Surveyor, Municipal Buildings, Liverpool, 2. Tenders by Sept. 26.

**Londonderry.**—Following works for Co. E.C.: Carrowmena Primary School Residence—internal and external painting; Coleraine High School Residence—internal and external painting; Derganagh Primary School—installation of public water supply; Dungiven Intermediate School—layout of playing fields; Killure Primary School extension—locks and furniture; Magherafelt Intermediate School—drainage works. Documents from the County Education Architect, Manor House, Coleraine. Deposit £1. Tenders by Sept. 19.

**Londonderry.**—Retiling or copper cladding, together with other incidental works, of the Guildhall spire, for City Council. Documents from the City Engineer and Surveyor, 5 Guildhall Street, Londonderry. Deposit £5 5s. Tenders by Sept. 24.

**Manchester.**—A selected list of contractors to tender for the proposed new abattoir, for City Council. The abattoir is estimated to cost about £2m., and comprises lairage, killing and cold store blocks, meat market, restaurant, administration and shop blocks, mainly in reinforced concrete construction, with general site development; railway sidings and platforms. The site area is approx. 21 acres, situate at Philips Park, Manchester. The work programme is planned to commence in March, 1961, and be completed by December, 1962. Applications to the City Architect, Town Hall,

Manchester, by 10 a.m., Sept. 14., giving full particulars of organisation, including details of plant labour resources, whether they can undertake to complete the works within the planned period; and quote examples of previous contracts of similar magnitude which they have successfully undertaken.

**Manchester.**—Design, supply and delivery of precast concrete floor units for incorporation in the Thermagard system of construction, to Harpurhey Technical High School, for City Council. Documents from City Architect, P.O. Box 488, Town Hall, Manchester. Tenders by Sept. 16.

**Millom, Cumb.**—External decoration of 18 houses at Mill Park, The Green, and 20 houses at Summerhill, Bootle, for R.D.C. Documents from the Surveyor and Chief Public Health Inspector, Council Offices, Market Square, Millom. Tenders by Sept. 10.

**Mynyddislwyn, Mon.**—Erection of lavatories, changing rooms and store, at Penllwyn Home-field playing fields, Pontllanfraith, for U.D.C. Documents from the Engineer and Surveyor, Council Offices, Pontllanfraith, Blackwood, Mon. Deposit £2 2s. Tenders by Sept. 20.

**Newton Abbot, Devon.**—Extension of the calf section at the cattle market for U.D.C. Documents from the Surveyor's Office, 18 Devon Square, Newton Abbot.

**Northern Ireland.**—Construction of seven garages, together with ancillary and engineering works at Whitewell, for Housing Trust. Documents from the Offices of the Trust, 12 Hope Street, Belfast, 12. Tenders by Sept. 23.

**Northern Ireland.**—Electrical and patent tile flooring sub-contracts in 63 dwellings at Londonderry (Belmont extension) for Housing Trust. Documents from the offices of the Trust, 12 Hope Street, Belfast, 12. Tenders by Sept. 14.

**Northern Ireland.**—External repainting of 221 dwellings, estate office and 27 garages at Newtownards 2 section II, for Housing Trust. Documents from the offices of the Trust, 12 Hope Street, Belfast, 12. Tenders by Sept. 12.

**North Riding.**—Alterations and extensions to High School for Girls, Richmond for Co. E.C. Documents from the County Architect, County Hall, Northallerton, or Dennis Clarke Hall, architect, 6 Masons Yard, Duke Street, St. James's, London, S.W.1. Tenders by Sept. 30.

**Oundle, Northants.**—Improvements to 20 council houses for U.D.C. Work includes the provision of bathrooms and w.c.s in new lean-to outbuildings with ancillary drainage works. Documents from Clerk to the Council, Council Offices, 6 North Street, Oundle. Deposit £2 2s. Tenders by Sept. 19.

**St. Austell, Corn.**—Decoration of the whole of the interior of the Roche Victory Hall for the Trustees, comprising a total surface area, including doors and windows, of approximately 12,000 sq. ft., for two- and three-coat work. Applications to C. H. Treval, Trebron, Roche, St. Austell. Tenders by Sept. 14.

**Salford, Lancs.**—Erection of a health clinic at Lower Kersal, for City Council. Documents from Cruickshank and Seward, architects, Royal London House, 196 Deansgate, Manchester. Deposit £3 3s. Tenders by Nov. 14.

**Seaton Valley, Northumb.**—Following for U.D.C.: (1) Electrical installations in 38 houses; (2) electrical installations in 48 houses; (3) sanitary goods and fireplaces for 86 houses; (4) ironmongery for 86 houses; (5) electrical goods for 86 houses; (6) gates. Documents from the Surveyor, Council Offices, Seaton Delaval, Whitley Bay. Tenders by Sept. 17.

**Smethwick, Staffs.**—Internal and external repairs to Bearwood Road Junior School for B.C. Written applications to the Borough Engineer and Surveyor, Council House, Smethwick. Deposit £2 2s., cheque payable to the Borough Treasurer. Tenders by Oct. 4.

**South Shields, Dur.**—Following at Whiteleas for B.C.: Block of 14 shops and 12 flats; 10 three-bedroom terrace houses; 16 two-bedroom terrace houses; eight corner type flats; and 43 garages, complete with rear access road to shops, drainage and other ancillary works. Documents from the office of the Borough Engineer, Town Hall, South Shields. Deposit £2 2s. Tenders by Oct. 12.

**Stanley, Dur.**—Erection of a laundry and common room on the Wrenthorpe and Kirkhamgate housing sites, for U.D.C. Documents from J. Hutwit, engineer and surveyor, Council Offices, Coach Road, Outwood. Deposit £2 2s. Tenders by Sept. 19.

**Stockport, Ches.**—Proposed kitchens at Maycroft and Brindale Schools, Brinnington, for B.C. Documents from Borough Architect, Town Hall, Stockport. Tenders by Oct. 5.

**Stroud, Glos.**—Contract H/46, work to the chimney stacks of eight houses at Kings Road, Stonehouse, for R.D.C. Documents from Housing Manager, John Street, Stroud, Glos. Tenders by Sept. 30.



**Surbiton, Surrey.**—Construction of chair store and extensions of caretaker's quarters at Assembly Rooms for B.C. Documents from the office of R. Thirlway, borough engineer and surveyor, Council Offices, Ewell Road, Surbiton. Tenders by Sept. 30.

**Surbiton, Surrey.**—Supply and erection of a pavilion in precast concrete (or other prefabricated construction) at King George's playing field, for B.C. Documents from the office of R. Thirlway, borough engineer and surveyor, Council Offices, Ewell Road, Surbiton. Tenders by Sept. 30.

**Todmorden, Yorks.**—Alterations to provide a servery and workshop at Stansfield View Hospital for Leeds Regional Hospital Board. Documents from the Architect to the Board, Park Parade, Harrogate. Deposit £2 2s. Tenders by Oct. 6.

**Tynemouth.**—Alteration and improvement at the Education Offices, The Chase, North Shields, for B.C. Documents from the Borough Surveyor, 16 Northumberland Square, North Shields. Deposit £2 2s. Tenders by Sept. 26.

**West Riding.**—Following for C.C.: (1) Forming of a rural studies unit at Conisbrough Northcliffe Secondary Modern School; (2) proposed adaptations at Slaithwaite branch library. Applications for contract (1) to the Divisional Architect, Planet Road, Adwick-le-Street, near Doncaster, and for contract (2) to the Divisional Architect, Flint Street, Huddersfield, by Sept. 19. Tenders by Oct. 3.

**West Riding.**—Various minor repairs, prior to painting and decorating, at the Don Valley High School, Jossey Lane, Scawthorpe, near Doncaster, for C.C. Documents from the Divisional Education Officer, County Area Offices, Station Road, Doncaster. Tenders by Sept. 14.

**West Suffolk.**—Erection of a new range of farm buildings (including demolition of part of existing buildings) at Vicarage Farm, Great Barton, for C.C. Documents from County Land Agent, Shire Hall, Bury St. Edmunds. Tenders by Sept. 27.

**Wirral, Ches.**—Construction of nine additional brick garages in three separate blocks off Sandridge Road, Pensby, for U.D.C. Documents from the Engineer and Surveyor, Council Offices, Heswall. Tenders by Sept. 17.

**Wokingham, Berks.**—Following painting works for B.C.: (1) External painting, Civil Defence Headquarters, Denmark Street; (2) external painting, 92 houses in Norreys Avenue and Barkham Road; (3) internal painting, public conveniences, Town Hall. Documents from the Borough Surveyor, Town Hall, Wokingham. Tenders by Sept. 16.

**Worcester.**—Exterior repair and redecoration of rear elevations, 55 Broad Street, for City Council. Documents from the City Engineer and Surveyor, 22 Bridge Street, Worcester. Deposit £2 2s. (cheques payable to the Corporation). Tenders by Sept. 19.

**Worcester.**—Exterior redecoration and repair of the administrative block at Hillborough for City Council. Documents from the City Engineer and Surveyor, 22 Bridge Street, Worcester. Deposit £2 2s. (cheques payable to the Corporation). Tenders by Sept. 17.

#### CLOTHING AND TEXTILES

**\*Birmingham.**—Supply of uniform clothing for City Transport. Tenders by Sept. 29.

**Blackpool, Lancs.**—Supply of overall clothing for B.C. Documents from the Director of Public Cleansing, 3 Caunce Street, Blackpool. Tenders by Sept. 21.

**Edinburgh.**—Supply of uniform clothing for Corporation Transport. Documents from the Transport Manager, 14 Queen Street, Edinburgh, 2. Tenders by Sept. 30.

**Monmouthshire.**—Supply of uniform clothing for ambulance drivers, for C.C. Uniform will be required for approx. 90/100 drivers. Documents from Vernon Lawrence, clerk of the Council, County Hall, Newport, Mon. Tenders by Sept. 17.

#### DEMOLITION

**Poole, Dorset.**—Demolition and site clearance of approximately 80 houses at Old Town for B.C. Documents from Borough Architect, Municipal Buildings, Poole. Deposit £2 2s. Tenders by Sept. 12.

**Salcombe, Devon.**—Demolition of two semi-detached houses and site clearance at Courtenay Street, for U.D.C. Documents from A. J. C. Nex, surveyor, Council Offices, Salcombe. Deposit £3 3s., cheque payable to U.D.C. Tenders by Sept. 14.

**York.**—Demolition of 157 properties in Percy Street, Whitby Terrace, Walmgate, Bishophill Junior, George Street, Trinity Lane and Eldon Street, for City Council. Documents from Chas. J. Minter, city engineer and surveyor and planning officer, 7 St. Leonard's Place, York. Deposit £1, cheque payable to Corporation. Tenders by Sept. 19.

#### ELECTRICAL

**Birmingham.**—Electrical installation at Field House Nursery, Clent, for City Council. Documents from the office of Sir Herbert J. Manzoni, city engineer and surveyor, Civic Centre, Birmingham, 1. Deposit £2 2s. cheque. Tenders by Sept. 16.

**Bradford, Yorks.**—Electrical installation to 67 houses, flats and bungalows at Holme Wood housing site (scheme 61) for City Engineer and Surveyor, Town Hall, Bradford. Deposit £2 2s., payable to the Corporation. Tenders by Sept. 19.

**Hull.**—Electrical installation to 157 dwellings, Boothferry estate for City Council. Documents from the City Architect, Guildhall, Hull. Deposit £2, payable to the City Treasurer. Tenders by Sept. 14.

**Montgomeryshire.**—Electrical installations at four smallholdings at Penstrowed, and one at Aberhafesp for C.C. Documents from D. A. Cresswell, county land agent, County Offices, Welshpool. Tenders by Sept. 17.

**Peterborough.**—Electric lighting and power installation to four shops with two flats and three maisonnettes over, at Malvern Road, Gunthorpe estate, for City Council. Documents from the City Engineer, Town Hall, Peterborough. Deposit £2. Tenders by Sept. 23.

**Sunderland, Dur.**—Electrical installation to the extensions and alterations to cleansing depot, Railway Row, for B.C. Documents from Borough Architect, Grange House, Stockton Road, Sunderland. Tenders by Sept. 19.

**Wem, Salop.**—Installation of electricity at six houses situated at Ash Whitchurch for R.D.C. Documents from C. H. Jeffery, surveyor, Council Offices, Wem. Tenders by Sept. 26.

#### FENCING

**Barnes, Surrey.**—Erection of the following for B.C.: (1) Chain link fencing at Westfields, S.W.13; (2) close boarded fencing at Westfields, S.W.13, comprising the supply and erection of approximately 100yd. of 6ft. chain link fencing and approximately 60yd. of 6ft. close boarded fencing. Separate tenders for either (1) or (2) will be accepted. Documents from W. R. Shepherd, borough engineer and surveyor, Municipal Offices, Sheen Lane, S.W.14. Tenders by Sept. 16.

**Belfast.**—Following for Belfast Hospital Management Committee at Royal Victoria Hospital: Supplying/erecting fencing at blood transfusion unit—R.V.H. Documents from the Superintendent Engineer, Area Maintenance Department, Royal Victoria Hospital. Tenders by Sept. 13.

**\*Cardiff.**—Fencing and gates at Western Cemetery, Ely, for City Council. Deposit £2 2s. Tenders by Oct. 5.

**Carmarthen.**—Mansel Street entrance, provision market, demolishing the existing gate pillars and rebuilding new pillars together with the erection of new double and single gates and works incidental thereto, for B.C. Documents from J. Vivian Evans, borough engineer, John Street, Carmarthen. Deposit £2 2s. Tenders by Sept. 12.

**Liverpool.**—Supply and erection of wrought-iron railings and gate, Lister Drive allotments, for City Council. Documents from City Engineer and Surveyor, Municipal Buildings, Liverpool, 2. Tenders by Sept. 12.

**Southport, Lancs.**—Provision and erection of approx. 475yd. of reinforced concrete posts and chain link fencing, at Liverpool Road recreation ground, for B.C. Documents from Borough Engineer, Town Hall, Southport. Tenders by Sept. 13.

**Surbiton, Surrey.**—Erection of various types of new fencing at Fishponds estate, for B.C. Documents from the office of R. Thirlway, borough engineer and surveyor, Council Offices, Ewell Road, Surbiton. Tenders by Sept. 30.

#### GAS AND WATER SUPPLY

**\*Angus.**—Pumping equipment, contract 4A, for C.C.

**\*Angus.**—Lundie / Auchterhouse / Tealing water supply, contract 4, for C.C.

**Antrim.**—Supplying and laying the following pipes, together with all necessary valves, specials and ancillary works, contract 7, for R.D.C.:  $\frac{3}{4}$  miles of 9in. diameter asbestos-cement pipe;  $\frac{1}{4}$  miles 8in. diameter asbestos-cement pipe. Documents from the offices of W. D. R. and R. T. Taggart, consulting engineers, 13 College Gardens, Belfast. Deposit £5 5s. Tenders by Sept. 15.

**Armagh.**—Following for Armagh and Dunganon Waterworks Joint Board, contract 8, including construction of one 30,000-gallon reinforced concrete water tower at Killylea; one 5,000-gallon reinforced service reservoir at Milford; and one 50,000-gallon reinforced concrete service reservoir at Loughgall, and for laying 550 lin. yd. of 4in. diameter spun-iron water mains at the Killylea water tower.

Documents from the Office of the Board, City Hall, Armagh. Deposit £5 5s. Tenders by Sept. 20.

**Biggleswade, Beds.**—Supply and erection of two submersible pumps in boreholes, contract 6, for Water Board. The supply of the associated switchgear is not included. Documents from Binnie, Deacon and Gourley, engineers, Artillery House, Artillery Row, Westminster, London, S.W.1. Deposit £10, cheque payable to the Board. Tenders by Sept. 13.

**Buckinghamshire.**—Mainlaying and mains maintenance, for Water Board, including laying and repair of spun-iron, steel and asbestos-cement water mains in all sizes from 3in. to 24in. diameter. The contract which will be for a period of three years, will include works in all parts of the board's area. In addition to the lengths of main of varying sizes which are included, there will be a regular and continuous amount of maintenance work at day-work rates, and it is expected that the total value for the three years will approximate to £125,000. It will be a condition of the contract that the successful contractor will be required to set up a depot and establish an organisation within the Board's area in order to efficiently administer the contract. Applications to H. A. Foley, clerk of the Board, 7 Temple Square, Aylesbury, in a sealed envelope endorsed "Mainlaying and Maintenance of Mains," by noon, Sept. 16. Accompanied by full details of at least two previous works, with the names of the authorities and engineers responsible, to whom reference may be made.

**Chipping Norton, Oxon.**—Laying approx. 2,000yd. of 3in. and 4in. pressure asbestos water mains at Salford, near Chipping Norton, for R.D.C. Documents from the Surveyor, Hillside, Albion Street, Chipping Norton. Tenders by Sept. 12.

**Clacton, Essex.**—Laying approximately 1,300yd. of 6in. pressure asbestos water mains at North Road and Thorpe Road, for U.D.C. Documents from Water Engineer and Manager, Town Hall, Clacton-on-Sea. Deposit £1 is. Tenders by Oct. 1.

**Hastings, Sussex.**—Supply of auto-pneumatic self-contained booster unit having duplicate electrically driven pumps and motors, suitable for operation on 240-V single-phase 50-cycles supply, to discharge approx. 1,000 gallons per hour at 150ft. total manometric head, complete with fully automatic starters and controls, pneumatic tank and air compressor, for B.C. Applications to the Waterworks Engineer, 28 Wellington Square, Hastings. Tenders by Sept. 15.

**Highworth, Wilts.**—Re-laying 700yd. of 3in. water main with asbestos-cement pipes at South Marston for R.D.C. Documents from Engineer and Surveyor, Council Offices, Bath Road, Swindon. Tenders by Sept. 21.

**Liverpool.**—Supply and installation of filtration plant, Steble Street baths, for City Council. Documents from the Bath Manager and Engineer, 62 Fontenoy Street, Liverpool, 3. Tenders by Sept. 19.

**London.**—Execution of the undermentioned work or the supply of any of the goods or articles and services respectively indicated for Metropolitan Water Board: Asbestos and pitch fibre pipes; construction of boreholes, wells and headings; cranes (overhead, runway, mobile); inspection and repair of chimney shafts; civil engineering work (buildings, demolition, mainlaying, roads and drainage, service reservoirs and contact tanks, storage reservoirs, tunnel mains, waterproofing service reservoirs, etc.); provision or hire of civil engineering plant; cocooning of plant; concrete products, all types; expansion jointing and sealing compounds, asphalt, etc.; supply and/or supply and erection of fencing; (pre-stressed, concrete palisade, concrete post and chain link, concrete post and cattle wire); firebricks and fireclay; glazing; grouting and grouting equipment; photo prints; provision or cleaning of protective and uniform clothing; complete pumping installations; reinforcement; roadmaking materials; sand, ballast and soil; steel tubes and specials; signs and nameplates, metal, etc.; soot blowers; tanks, drums, cisterns and allied products; tarpaulins, valves, all types, and accessories. Applications to S. D. Askew, clerk of the Board, Offices of the Board, New River Head, Rosebery Avenue, London, E.C.1.

**Manchester.**—Supply, delivery and erection of fire hydrants and mains at Langho Colony, near Blackburn, for City Council. Documents from City Architect, P.O. Box 488, Town Hall, Manchester. Tenders by Sept. 23.

**Muckamore, Antrim.**—Construction of water pipeline to hostel and high level tank, Greenmount Agricultural College, Muckamore, for Ministry of Finance. Documents from Room 103, Law Courts Building, Belfast, 1. Tenders by Sept. 12.

**Newry, Armagh.**—Comprehensive water scheme, zone 5—extension, Finegan's Forge via Rice's Cross towards Jonesborough and Foughill Oira for R.D.C., which comprise

the laying of the following lengths of spun-iron flexible jointed water mains: 2,220 lin. yd. of 5in. diameter pipes, class B; 3,530 lin. yd. of 4in. diameter pipes, class B; 1,280 lin. yd. of 3in. diameter pipes, class C, together with necessary valves and fittings. Documents from W. B. O'Donoghue, clerk of Council, Rural Council Offices, Daisy Hill Newry. Deposit £10 10s. Tenders by Oct. 5.

**Pembroke.**—Extension of water mains from Lane Head to Ferryway, Cosheston, and the erection of a steel elevated tank for R.D.C. The works include the excavating and refilling of trenches in roads and fields, supplying, laying and jointing approximately 2,200 lin. yd. of 3in. diameter and 900 lin. yd. class D asbestos-cement pressure pipes with valves and special fittings, erection of a steel elevated tank capacity 20,000 gallons, concrete post and galvanised wire fencing, connections to existing mains all complete. Documents from F. S. Jones, clerk of the Council, Tudor House, Pembroke, or from J. Owen Parry and Lewis, consulting engineers, Ammanford. Deposit £3 3s. Tenders by Sept. 14.

**\*Port Talbot, Glam.**—Laying water supply for B.C. Deposit £2 2s. Tenders by Sept. 19.

**Romsey and Stocksbridge, Hants.**—Northern parishes water supply, extension to Palestine, including building of a small brick pump-house, approximately 10ft. sq., at Over Wallop for R.D.C. Documents from Lemon and Blizard, consulting engineers, Telford House, Hulme Road, Southampton. Deposit £3 3s. (cheque). Tenders by Sept. 19.

#### HEATING AND VENTILATING

**Bridgnorth, Salop.**—Installation of a hot water supply in 22 houses, together with the fixing of tiled fireplaces in place of existing cooking ranges, and other incidental works, for B.C. Documents from the Borough Surveyor, College House, Bridgnorth. Tenders by Sept. 24.

**Dublin, Eire.**—Mechanical fuel handling equipment required at St. Ita's Hospital, Portrane, for Health Authority, consisting of reciprocating feeder, inclined conveyor, vertical elevator and discharge chutes. Documents from J. A. Kenny and Partners, consulting engineers, 44 Kildare Street, Dublin. Deposit £5 5s. cheque, payable to the Authority. Tenders by Sept. 15.

**East Riding.**—Installation of engineering services to the new conference hall at the Institute of Agriculture, Bishop Burton, for C.C. Applications to the County Architect, County Hall, Beverley. Tenders by Sept. 22.

**Enniskillen, Fermanagh.**—Low pressure hot water heating, hot, cold and drinking water and compressed air service installations at post office garage, wash bay and workshop. Enniskillen, for Ministry of Finance. Documents from Room 103, Law Courts Building, Belfast, 1. Tenders by Sept. 15.

**Hoddesdon, Herts.**—Installation of Ascot water heaters, lavatory basins and other incidental works to 50 houses for U.D.C. Documents from the Housing Manager, Council Offices, Hoddesdon.

**Lancashire.**—Heating installation at Darwen Grammar School, for C.C. Applications to the County Architect, P.O. Box 26, County Hall, Preston, by Sept. 12.

**Manchester.**—Heating installation and hot water service boiler house plant at All Hallows R.C. Secondary School, Wythenshawe, for City Council. Documents from City Architect, P.O. Box 488, Town Hall, Manchester. Tenders by Sept. 14.

**Middleton, Lancs.**—Provision and installation of a small central-heating boiler, together with minor alterations to the existing heating and radiator installation at the Public Library for B.C. Applications to the Borough Surveyor, Town Hall, Middleton. Tenders by Sept. 19.

**Orkney.**—Following, at new primary school, Papdale, Kirkwall, for C.C.: Heating installations; electrical installations. Documents from County Architect's Department, Mount-hoolie Lane, Kirkwall. Tenders by Sept. 19.

**Wem, Salop.**—Installation of hot water facilities at six houses situated at Harvern Gardens, Prees, for R.D.C. Documents from C. H. Jeffery, surveyor, Council Offices, Barber House, Wem. Tenders by Sept. 29.

#### HOUSING SCHEMES

**Aberaeron, Cards.**—Eight pairs of B4D (N.A.) type houses and two pairs of OP8 type bungalows at Llanon Camp site, Llanon, together with the construction of estate road, footpaths, drainage, sewer, fencing works, etc., for R.D.C. Documents from J. Owen Parry and Lewis, architects, Ammanford, or S. G. D. Evans, clerk of the Council, Council Offices, 1 North Road, Aberaeron. Deposit £3 3s., payable to R.D.C. Tenders by Sept. 27.

**Batley, Yorks.**—Thirty-two houses and flats and 12 garages at Howden Clough housing site, Leeds Road, Birstall, for B.C. Documents from the Borough Engineer, West House, Hanover Street, Batley. Tenders by Sept. 17.

**Billingham, Dur.**—Ten bungalows at Finchale Avenue, contract period six months, for U.D.C. Documents from the Engineer and Surveyor, Council Offices, Haverton Hill. Deposit £2 2s. Tenders by Sept. 26.

**\*Bridge-Blean, Kent.**—Thirty dwellings at Chartham for R.D.C. Deposit £2 2s. Tenders by Sept. 28.

**Cheshunt, Herts.**—Erection of a small detached house and all ancillary works, including the demolition of a part-underground shelter at Waltham Cross playing fields, contract 370, for U.D.C. Documents from the Engineer and Surveyor, Manor House. Deposit £2. Tenders by Sept. 12.

**Coseley, Staffs.**—Fifty-two dwellings in two and three stories at Meadow Lane, for U.D.C. Applications to J. C. Roper, clerk of the Council, Council House, Coseley, by Sept. 12. Deposit £2 2s. (cheques payable to U.D.C.). Tenders by Oct. 10.

**Credition, Devon.**—Construction of six one-bedroom flats at Church Street, for U.D.C. Applications to F. W. Beech and E. Curnow Cooke, architects, 15 Dix's Field, Exeter. Deposit £3 3s., cheques payable to U.D.C. Tenders by Sept. 26.

**\*Crook and Willington, Dur.**—Fifty houses at Watergate estate, contract 8, for U.D.C. Apply by Sept. 14. Deposit £2 2s.

**Droitwich, Worcs.**—Four pairs of three-bedroom houses and a block of four single-bedroom bungalows and the construction of sewage disposal works at Himbleton for R.D.C. Documents from the office of the Surveyor, Council Offices, Ombersley Street, Droitwich. Deposit £2 2s. Tenders by Sept. 27.

**Farnham, Surrey.**—Following for U.D.C.: Construction of 16 old persons' dwellings in one terrace at West Street, and demolition of eight cottages and outbuildings. Documents for either or both works from Gilbert and Hobson, 69a Castle Street, Farnham. Deposit £2. Tenders by Sept. 26.

**Flint.**—Erection of 15 permanent brick-built garages, together with approximately 880 lin. yd. half-brick boundary wall 2ft. 3in. high, 150 lin. yd. dwarf post and wire fencing and 60 lin. yd. 4ft. high chain link fencing on concrete posts, at the Maes Gwyn housing estate, for B.C. Documents from the Borough Engineer and Surveyor, Municipal Offices, Earl Street, Flint. Tenders by Sept. 22.

**Fulwood, Lancs.**—Construction of roads, sewers and land drainage works at aged persons' bungalows on land off Sharoe Green Lane South, for U.D.C. The scheme consists of approx. 1,500 sq. yd. of carriageway; 1,000 sq. yd. of footways; 500 lin. yd. of precast concrete kerbs; 320 lin. yd. of 9in. and 6in. salt-glazed ware sewers, including manholes and ancillary works, and some land drainage work. Documents from the Engineer and Surveyor, Council Offices, Garstang Road, Fulwood. Deposit £2 2s. Tenders by Sept. 20.

**Haltemprice, Yorks.**—Erection of 40 houses on the Manor House estate, Anlaby, for U.D.C. Documents from the Engineer and Surveyor, Anlaby House, Anlaby. Deposit £1, payable to the Treasurer. Tenders by Sept. 19.

**Hamilton, Lanarks.**—Fifty-nine houses at Townhill Road site, Udston-Hillhouse, for B.C. Applications to Burgh Architect, 56 Brandon Street, Hamilton, by Sept. 10. Deposit £2.

**Hemsworth, Yorks.**—Twelve one-bedroom-type bungalows in each of the following parishes for R.D.C.: Ackworth, Brierley, Havercroft, Great Houghton and Thorpe Audlin. Documents from F. Baxter, engineer and surveyor, Brierley Hall, Brierley, near Barnsley. Deposit £4 4s. Tenders by Sept. 21.

**Henley, Oxon.**—One-bedroom traditional bungalows for R.D.C. on sites at Checkendon (two); Crommarsh, North Stoke (two); Crommarsh, Park View (three); Nettlebed (12); and South Stoke (four). Applications to Sidney Harrison, clerk, Easby House, Northfield End, Henley-on-Thames, by Sept. 12.

**Hereford.**—Erection and completion of five bungalows and garages at a site in Home Lane for City Council. Documents from the City Architect, Town Hall, Hereford. Deposit £2 2s. Tenders by Sept. 19.

**Holmfirth, Yorks.**—Following for U.D.C.: (a) Construction of roads and sewers; (b) erection of 32 dwellings, at Roundway housing estate, Honley. Applications in writing before Sept. 14, to (a) the Surveyor, Market Street, Holmfirth; and (b) P. N. Brown and Son, Market Place, Honley. Deposit £2 2s., cheque each. Tenders by Oct. 10.

**Inverness-shire.**—Twelve houses at Mallaig and four houses at Carbost, Isle of Skye, for C.C. Applications to the County Architect, The Castle, Inverness, by Sept. 14.

**Mitford and Launditch, Norfolk.**—Following dwellings together with external services at the following sites for R.D.C.: Billingsford—terrace of four bungalows and two pairs of houses; Foxley—one pair of houses; Garvestone—two pairs of bungalows; Scarning—one pair of houses and one pair of bungalows. Construction of an estate roadway, main sewers and sewage disposal plant at Gressenhall. Applications to Tuthill and Burton, architect and surveyors, 4b Market Place, Dereham, Norfolk. Deposit £2 2s. Tenders by Sept. 24.

**\*North Cotswold, Glos.**—Erection of eight dwellings at Littleworth estate for R.D.C. Apply by Sept. 17. Deposit £2 2s.

**Northern Ireland.**—Construction of 299 dwellings and 96 garages, together with ancillary and engineering works, at Dunmurry (Conway), for Housing Trust. Documents from the offices of the Trust, 12 Hope Street, Belfast, 12. Deposit £3. Tenders by Sept. 28.

**\*Northwich, Ches.**—Twenty-eight dwellings for R.D.C. Deposit £2 2s. Tenders by Oct. 6.

**Oxford.**—Following in traditional brick construction for City Council: Blackbird Leys estate: (1) Block of 12 lock-up shops with maisonnettes over and garages and a public convenience adjoining; (2) 53 three-bedroom houses of one type and eight garages; (3) 59 three-bedroom houses of two types and 20 garages; (4) 24 two-bedroom flats in two three-storey blocks; (5) 22 three-bedroom maisonnettes in a four-storey block; (6) 12 old people's flats in a two-storey block; (7) four pairs of five- and two-bedroom houses, Ferry Road, Marston; (8) Pair of three-bedroom houses. Off Cornwallis Road; (9) Twenty-one three-bedroom houses with garages attached. Applications to the City Architect and Planning Officer, Town Hall, Oxford, by Sept. 13.

**Pershore, Worcs.**—Work in connection with the modernisation of eight houses at Wyre, 16 houses at Hill and Moor, and 10 at Crophorne for R.D.C. The work comprises the addition of bathrooms, ancillary plumbing, hot water services, etc. Applications to W. G. Trapp, clerk, Council Offices, High Street, Pershore. Deposit £2 2s. Tenders by Oct. 3.

**Port Talbot, Glam.**—Forty-four dwellings at Harry site, Sandfields, for B.C. Documents from G. V. Griffiths, borough engineer, Municipal Buildings, Port Talbot. Deposit £2 2s. Tenders by Sept. 19.

**Prestwich, Lancs.**—Two blocks of 12 flats each in the Heaton Park redevelopment areas 1 and 2 (Infant Street) for B.C. Documents from the Borough Engineer, Town Hall, Prestwich. Deposit £5 5s. Tenders by Sept. 27.

**Reading, Berks.**—Twenty-two dwellings and six garages at The Mount, Albert Road, Caversham, for B.C. Documents from the Borough Architect, Town Hall, Reading, on or after Sept. 2. Deposit £2 2s. (cheques payable to the Corporation). Tenders by Sept. 26.

**\*Reigate, Surrey.**—Two blocks of 12 maisonnettes with 36 stores under and four garages for B.C. Deposit £2 2s. Tenders by Sept. 27.

**Sevenoaks, Kent.**—Eight semi-detached houses and two ageing persons' flats in one contract at Farley Croft and Granville Road, Westerham, for R.D.C. Documents from the Engineer and Surveyor, Inglewood, Oak Hill Road, Sevenoaks. Deposit £2 2s. Tenders by Oct. 4.

**South Shields, Dur.**—Erection of 103 houses and 13 garages at Simonside for B.C. The contract consists of 48 two-bedroom terrace houses, 25 three-bedroom terrace houses and 30 corner type flats and 13 garages. Documents from the Borough Engineer, Town Hall, South Shields. Deposit £2 2s. Tenders by Oct. 12.

**Stokesley, Yorks.**—Two detached aged persons' bungalows at Central Way, Great Ayton (scheme No. 14/60), for R.D.C. Documents from the Engineer and Surveyor, Council Offices, Stokesley. Deposit £2 2s. Tenders by Oct. 8.

**Tenterden, Kent.**—Twenty-two elderly people's single-bedroom bungalows at Oaks Road site for B.C. Documents from H. G. Hunt, Dallas Cottage, Salts Lane, Loose, near Maidstone. Deposit £2 2s. Plans also seen at the Town Hall, Tenterden. Tenders by Sept. 26.

**Totnes, Devon.**—Following for R.D.C.: (a) one pair of semi-detached bungalows at Butterlake; (b) one pair of semi-detached bungalows at Furzegood, together with incidental works and services. Documents from the Engineer and Surveyor, Council Offices, Higher Plymouth Road, Totnes. Deposit £2 2s. each. Tenders by Sept. 29.

**Truro, Corn.**—Eight bungalows and road-works at Perranarworthal for R.D.C. Applications to J. H. Snellgrove and Partners, quantity surveyors, 47 Coinagehall Street,



Helston, by Sept. 6. Deposit £2 2s., payable to R.D.C. Plans seen at the offices of Alfred J. Cornelius, architect, 13 Lemon Street, Truro. Tenders by Oct. 11.

**Up Holland, Lancs.**—Following on the Highgate estate, for U.D.C.: (1) Construction of roads and sewers; (2) erection of 73 houses. Documents from J. Terence Iball, engineer and surveyor, Municipal Buildings, Up Holland. Deposit £2 2s. Tenders by Sept. 30.

**\*Walsall, Staffs.**—Twenty-eight flats, Ely Place, for B.C. Deposit £2 2s. Tenders by Sept. 21.

**Wotton and Weybridge, Surrey.**—Erection of 54 flats in five three-storey blocks on the Sandy Lane housing site, Walton-on-Thames, for U.D.C. Documents from the office of the Engineer and Surveyor to the Council, Council Offices, Walton-on-Thames. Tenders by Oct. 6.

**Watford, Herts.**—One detached house at Muriel Avenue for B.C. Applications to F. C. Sage, borough engineer and surveyor, Town Hall, Watford, by 2 p.m., Sept. 27. Deposit £2 2s. Tenders by Oct. 12.

**West Suffolk.**—Erection of houses with garages for police inspectors on the following sites for Standing Joint Committee: (a) Two—Westey estate, Newmarket Road, Bury St. Edmunds; (b) one—Hamlet Road, Haverhill. Applications to the County Architect, 13 Westgate Street, Bury St. Edmunds, by Sept. 14. Tenders by Oct. 12.

**York.**—Following for City Council: (a) 82 dwellings at Chapel Fields estate, York; (b) 72 brick garages on six separate sites, York. Documents from E. Firch, city architect, 8 St. Leonard's Place, York. Deposits of £3 and £1, respectively, or £3 collectively (cheques payable to York Corporation). Tenders by Sept. 23.

#### MATERIALS AND SUPPLIES

**Castlereagh, Down.**—Supply of 272 sink units with stainless steel tops, for R.D.C. Documents from the Council Offices, 368 Cregagh Road, Belfast, 6. Deposit £3. Tenders by Sept. 9.

**Lancashire.**—Supply of the following materials for C.C.: (1) Aggregate for concrete; (2) ashes (fine and rough); (3) castings—manhole covers, gully grates, etc.; (4) cement; (5) chippings—precast granite and dry limestone and granite; (6) concrete—ready mixed; (7) hot rolled asphalt; (8) kerbs, flags, etc.—hydraulically pressed; (9) laying of plastic white lines and reflector studs; (10) petrol and derv; (11) pipes, etc.—earthenware; (12) plastic white line material; (13) sand concrete, building and gritting; (14) tar and tar compounds and bitumen; (15) tar and bitumen macadam, etc., and cold asphalt; (16) traffic signs; (17) tools (shovels, picks, etc.). Applications to the County Surveyor, County Hall, Preston (P.O. Box 9), by Sept. 30, quoting ref. 148/51.

**Lisburn, Antrim.**—One hundred and fifty-two houses, Milltown, Derriagh, Dunmurry. Supply of fireplaces, locks and hardware, for R.D.C. Documents from William Barklie Maxwell, chartered architect, 5 University Terrace, Belfast, 7. Tenders by Sept. 19.

#### MISCELLANEOUS

**Belfast.**—Supply and delivery of oil storage tanks for proposed College of Art, for City Council. Documents from Education Architect's Department, 40 Academy Street, Belfast, 1. Tenders by Sept. 15.

#### PLANT AND MECHANICAL TRANSPORT

**Andover, Hants.**—Supply of a Karrier Bantam 2-ton Highway Tipper vehicle for B.C. Documents from the Borough Surveyor, Municipal Offices, Beech Hurst, Weyhill Road, Andover. Tenders by Sept. 16.

**Consett, Dur.**—Supply and delivery of one Karrier house refuse vehicle, 10 cu. yd., for U.D.C. Documents from the Engineer and Surveyor, Council Offices, Medomsley Road, Consett. Tenders by Sept. 23.

**Cuckfield, Sussex.**—Supply and delivery of one diesel engine tractor-mounted excavator/loader for use in connection with the disposal of refuse on a controlled tip for U.D.C. Documents from the office of the Surveyor, Oaklands, Haywards Heath. Tenders by Sept. 17.

**Downpatrick, Down.**—Supply and delivery for R.D.C., one diesel-driven fore and aft tipping refuse collector of 25 cu. yd. capacity, fitted with double cab providing accommodation for loaders. The body should be of all metal construction, the rear opening capable of being closed with suitable shutters. The painting and lettering shall be to the Council's requirements. Tenders, accompanied by specifications, drawings, etc., and stating the delivery date, must be delivered to the Clerk, Rural District Council Offices, Quoile Road, Downpatrick, by Sept. 30.

**Eccles, Lancs.**—Supply and delivery of one 750/800 gallon capacity diesel gully emptier,

complete, for B.C. Documents from Borough Engineer and Surveyor, Town Hall, Eccles. Tenders by Sept. 12.

**Hawarden, Flints.**—Following for R.D.C.: Supply of one Karrier Gamecock (petrol driven) refuse collecting vehicle, 12 cu. yd., three shuttered, delivered to depot at Queensferry, painted and lettered to the Council's requirements. Tenderers to quote in part exchange for an existing Karrier Bantam vehicle Reg. No. EDM 183—details as to the inspection of this vehicle may be obtained from the Chief Public Health Inspector, Council Offices, Hawarden. Tenders to F. N. V. Meredith, clerk of the Council, Council Offices, Hawarden, Chester, by noon, Sept. 15.

**Isle of Ely.**—Supply of Massey-Ferguson diesel tractor to the Horticultural Institute, Wisbech for C.C. Documents from the Chief Education Officer, County Hall, March. Tenders by Sept. 20.

**Liverpool.**—Supply of a steel manure box trucks, 19 cu. ft. capacity on steel chassis with cast-iron wheels, for City Council. Documents from the General Manager, Markets Department, Stanley Abattoir, Liverpool, 13. Tenders by Sept. 20.

**Morley, Yorks.**—Supply of two Scwt. B.M.C. vans for the Health Department. The vans to be fitted with one passenger seat and painted in blue finish with lettering on doors. Documents from the Chief Public Health Inspector, 7 Commercial Street, Morley. It is a condition of the tender that a 1954 Austin A40 10-cwt. van be taken in part exchange. This van can be seen by arrangement with the Chief Public Health Inspector (Tel. 1084). Tenders by Sept. 24.

**Tottenham, Middx.**—Supply of Karrier Gamecock vehicle, with petrol engine, mounted with suitable body, for towing mobile library vans for B.C. Documents from the Director of Libraries and Museum, Central Library, 391 High Road, N.17. Tenders by Sept. 16.

#### PLAYING FIELDS, PARKS, ETC.

**Armagh.**—Tennis courts at new technical college, Lurgan, for Co. E.C. Documents from G. P. and R. H. Bell, architects, Solitude, Lurgan. Tenders by Sept. 19.

**Dalkeith, Midlothian.**—Levelling, draining, sowing and fencing of approximately seven acres of playing fields at Woodburn, for B.C. Applications to Morham and Brochie, 29 Hanover Street, Edinburgh.

**Dudley, Worcs.**—Development of public open space, Wolverton Road, for B.C., consisting of 10,000 cu. yd. of earthmoving, 2,500 sq. yd. of bituminous macadam surfacing to car park, 5,000 sq. yd. of cold asphalt surfacing to footpaths and playgrounds, drainage, fencing and installation of playground equipment. Applications to the Borough Engineer, Council House, Dudley, by Sept. 12. Deposit £2 2s. Tenders by Oct. 10.

**Hull.**—Removal of trees, grading and levelling of approx. 38 acres of land at the Longhill playing fields, Longhill estate, for City Council. Documents from the Parks, etc., Department, 79 Ferensway, Kingston-upon-Hull. Tenders by Sept. 12.

**Pontardawe, Glam.**—Turfing the bowling green at the King George V Memorial Park, for R.D.C. Documents from D. S. F. Williams, engineer and surveyor, Council Offices, Pontardawe. Tenders by Sept. 14.

**Port Talbot, Glam.**—Construction of park and gardens at Tollgate Island, Margam, for B.C. The scheme comprises the following works: 1,600 lin. yd. 6in. by 2in. kerbing; 2,000 super. yd. tarmac footpaths; 170 lin. yd. 6in. drain; 13 gullies; 850 lin. yd. chain link fencing; five acres clearing, ploughing, seeding, etc., and ancillary works; 2,000 super. yd. gravel path; four manholes. Documents from the Borough Engineer, Municipal Buildings, Port Talbot. Deposit £2 2s. Tenders by Sept. 19.

**Rochford, Essex.**—Supply/erection of children's playground equipment on the open spaces at Playstalls, Barling Magna and Rochford Garden estate for R.D.C. Documents from the Engineer and Surveyor, Council Offices, Rochford. Deposit £1. Tenders by Sept. 22.

**Wallsend, Northumb.**—Preparation of the playing field at Wallsend Central County Secondary School for Education Committee. Documents from the Borough Education Officer, Town Hall, Wallsend. Tenders by Sept. 14.

#### ROADS, BRIDGES AND SITE WORKS

**Aldershot, Hants.**—Construction of footways and carriageways, together with ancillary drainage, at Denmark Street, for B.C. Documents from the Borough Engineer and Surveyor, Town Hall, Aldershot. Deposit £2 2s. Tenders by Sept. 26.

**Atherstone, War.**—Site preparation works at Warton housing estate 3, comprising approximately the following: 257 lin. yd. of

6in. and 9in. diameter sewers; 235 lin. yd. of precast concrete kerbing; 650 super. yd. of ashed, pitched and tarmacad carriage-ways; 650 super. yd. of precast concrete footpaths, together with general site grading, excavation, and other works incidental thereto. Documents from D. C. Smith engineer and surveyor, Council Offices, Atherstone. Deposit £2 2s. Tenders by Sept. 19.

**Bath.**—Snow Hill redevelopment, phase II, construction of roads, sewers and ancillary works, for City Council. Documents from the City and Waterworks Engineer, Guildhall, Bath. Deposit £2 2s. Tenders by Sept. 12.

**\*Bebington, Ches.**—Making-up of High Street, Bromborough, for B.C. Depos. £2 2s. Tenders by Sept. 23.

**Berkshire.**—Construction of advance road and drainage works on the Nursery and joyount sites, Oxford Road, Abingdon, for C.C. The works are as follows: 1,800 sq. yd. of clinker and hardcore foundation; 1,800 sq. yd. of tarspray and chippings; 740 lin. yd. of 22in. by 6in. concrete haunch; 370 lin. yd. of 9in. surface water drain; 55 lin. yd. of 6in. surface water drain, together with excavation, manholes, gullies and appurtenant works. Documents from the County Surveyor, Shire Hall, Reading. Deposit £2. Tenders by Sept. 12.

**Birmingham.**—Construction of approx. 185yd. of 10ft. carriageways, together with the surfacing, at Birmingham Airport, Edmdon, for City Council. Documents from the office of Sir Herbert J. Manzoni, city engineer and surveyor, Civic Centre, Birmingham, 1. Deposit £2 2s. Tenders by Sept. 14.

**\*Birmingham.**—Construction of roads and sewers at Wyrley Birch housing estate for City Council. Deposit £2 2s. Tenders by Sept. 21.

**\*Blackpool, Lancs.**—Making-up five private streets for B.C. Deposit £2. Tenders by Sept. 23.

**Bootle, Lancs.**—Resurfacing approximately 15,890 sq. yd. of Aintree Road and Marsh Lane with two-course hot rolled asphalt for B.C. Documents from the Borough Engineer, Town Hall, Bootle, 20. Tenders by Sept. 17.

**Brackley, Berks.**—Construction of roads and sewers on the proposed industrial estate for B.C. Documents from the Borough Surveyor, Municipal Offices, Brackley. Tenders by Sept. 17.

**Bridlington, Yorks.**—Construction of approximately 350 super. yd. of tarmacad road and footpaths and the laying of about 130 lin. yd. 6in. diameter surface water drain and manholes at Rudston housing site, for R.D.C. Documents from the offices of Fairbank and Son, consulting engineers, The Gables, 62a Bootham, York. Deposit £2 2s., cheques payable to R.D.C. Tenders by Sept. 23.

**\*Buckinghamshire.**—Improvement at Normill Terrace, trunk road A.41, for C.C. Deposit £2. Tenders by Oct. 3.

**\*Buckinghamshire.**—Improvement at Radnage Turn trunk road, A.40, for C.C. Deposit £2. Tenders by Oct. 3.

**\*Buckinghamshire.**—Roadworks, Station Road, Amersham, for C.C. Deposit £2. Tenders by Sept. 26.

**\*Bury, Lancs.**—Various road works for B.C. Tenders by Sept. 24.

**Cannock, Staffs.**—Longford Road, Cannock—34 housing site (first phase), roads and sewers, for U.D.C. The work comprises the construction of approximately 3,500 lin. yd. of bituminous macadam carriageways (16ft., 22ft., 24ft. wide); 700 lin. yd. of concrete carriageways (14ft. wide); 3,850 lin. yd. of storm and foul sewers (6in. to 24in. diameter), together with ancillary works. Documents from the offices of the Engineer and Surveyor, Council House, The Green, Cannock. Deposit £3 3s. Tenders by Sept. 17.

**\*Chapel-en-le-Frith, Derbys.**—Roadworks and provision of water main for R.D.C. Deposit £2 2s. Tenders by Oct. 1.

**\*Chelmsford, Essex.**—Roads and sewers at Meadgate estate, phase III, for B.C. Deposit £2 2s. Tenders by Oct. 3.

**Cheshunt, Herts.**—Turners Hill/College Road (The Triangle), contract 378, comprising construction of a traffic roundabout and ancillary works, together with the provision and erection of group A lighting for U.D.C. Documents from the office of the Engineer and Surveyor, Manor House, Cheshunt. Deposit £2. Tenders by Sept. 16.

**Chingford, Essex.**—(1) Chingford Mount Road (Sinclair Road/Hampton Road)—resurfacing; (2) Sewardstone Road (Merryhill Close/Kings Head Mill)—reconstruction, comprising (1) removal of asphalt surfacing and laying new rolled asphalt surfacing, re-laying kerb, and incidental footpath and drainage work; (2) breaking-out of existing carriage-way and re-laying in reinforced concrete, kerbing and construction of footway, and incidental work for B.C. Documents from the Borough Engineer, Town Hall, E.4. Deposit £2 2s. each. Tenders by Sept. 21.



**Crosby, Lancs.**—Hot rolled asphalt carpeting of Crosby Road North, College Road, Manor Road and the Northern Road, totalling approximately 16,000 sq. yd., together with approximately 3,000 sq. yd. of Sand carpet in The Serpentine and Serpentine North for B.C. Documents from the Borough Engineer and Surveyor, Town Hall, Waterloo, Liverpool, 22. Deposit £2 2s. Tenders by Sept. 16.

**Corby, Northants.**—Following at Rockingham Road site 2 for U.D.C., comprising construction of approximately 800 sq. yd. of flexible carriageway; 260 lin. yd. of kerbing, and 500 lin. yd. of foul and surface water sewers, together with other ancillary works. Documents from G. B. Blackall, clerk of the Council, Council Offices, Corby. Deposit £1 (cheques payable to U.D.C.). Tenders by Oct. 6.

**Denby Dale, Yorks.**—Widening and reconstruction of Smithy Lane, Skelmanthorpe, from the junction of Commercial Road, for a length of approximately 250 yd., for U.D.C. Documents from Joseph Berry and Sons, chartered architects, 5 Market Walk, Huddersfield. Deposit £2 2s., cheques payable to U.D.C. Tenders by Sept. 20.

**Denton, Lancs.**—Making-up of Sunningdale Road and Hillcrest Drive (part of) for U.D.C. Documents from the office of the Engineer and Surveyor, Town Hall, Denton. Deposit £2 2s., payable to U.D.C. Tenders by Oct. 3.

**Derbyshire.**—Widening and realignment at Blacksmith Lane, Calow (class III), near Chesterfield (length approximately 500 lin. yd.) for C.C. comprising site clearance, earthworks, drainage, widening and regrading of the existing carriageway, and other ancillary works. Documents from the County Surveyor, County Offices, Matlock. Deposit £2 (cheques payable to C.C.). Tenders by Sept. 14.

**Dudley, Worcs.**—Waddams Pool improvement for B.C., comprising approximately 4,000 cu. yd. of excavation, 150 sq. yd. of retaining walls, 420 sq. yd. of pitched foundation and macadam surfacing and ancillary works. Applications to the Borough Engineer and Surveyor, Council House, Dudley, by Sept. 23. Deposit £2 2s.

**East Ham.**—Burning off and supplying and laying of hot-rolled asphalt (4,000 super. yd.) to part of the East Ham/Barking By-pass, for B.C. Documents from the Borough Engineer, Town Hall, East Ham. Deposit £2 2s. Tenders by Sept. 19.

**Ebbw Vale, Mon.**—Burning-off and planing 3,000 sq. yd. of carriageway, laying of 2,770 sq. yd. of hot rolled asphalt 2 in. thick and other ancillary works, and surfacing pedestrian crossings at various points in the district with mastic asphalt for U.D.C. Documents from J. M. Davies, engineer and surveyor, District Council Offices, The Walk, Ebbw Vale. Tenders by Sept. 19.

**Edinburgh.**—Following for City Council: Asphalt surfacing and concrete flag paving at (I) widening of High Street, Portobello, at Rosefield Avenue; (II) widening of Bath Street, Portobello. Documents from City Engineer, 329 High Street, Edinburgh, 1. Tenders by Sept. 12.

**\*Epping, Essex.**—Fencing and concrete paths for U.D.C. Tenders by Sept. 24.

**\*Epping Essex.**—Making-up of Nicholl Road, for U.D.C. Deposit £2 2s. Tenders by Sept. 29.

**Fulwood, Lancs.**—Making-up of Sharoe Mount Avenue for U.D.C. Documents from the Engineer and Surveyor, Council Offices, Garstang Road, Fulwood. Deposit £2 2s. Tenders by Sept. 13.

**\*Gloucester.**—Construction of section of internal by-pass for City Council. Deposit £2 2s. Tenders by Sept. 28.

**\*Gloucestershire.**—Bibstone diversion. Cromhall, for C.C. Deposit £5. Tenders by Oct. 5.

**Haltemprice, Yorks.**—Realignment of Beverley Road, Willerby (A.164), between Willerby Low Road and Victoria Avenue, for U.D.C., including approximately 2,800 sq. yd. tarmac road, 800 lin. yd. kerbing and channelling, 300 lin. yd. 9 in. sewer and 1,200 sq. yd. footpath. Documents from the Engineer and Surveyor, Anlaby House, Anlaby. Deposit £1, payable to the Treasurer. Tenders by Sept. 13.

**Haltemprice, Yorks.**—Construction of approximately 500 sq. yd. tarmac road, 200 lin. yd. kerbing and 100 lin. yd. 9 in. sewers on the Manor House estate, Anlaby, for U.D.C. Documents from the Engineer and Surveyor, Anlaby House, Anlaby. Deposit £1, payable to the Treasurer. Tenders by Sept. 13.

**Hazel Grove and Bramhall, Ches.**—Making-up and completion of Holland Road, for U.D.C. Documents from the office of the Engineer and Surveyor, Council House, Hazel Grove. Deposit £2 2s. Tenders by Sept. 20.

**Hinckley, Leics.**—Making-up of Brame Road (length approx. 200 yd.), comprising kerbs,

carriageway and footpath foundations and surfacing, gullies, gully connections and surface water sewer, for U.D.C. Documents from the Surveyor, Argent House, St. Mary's Road, Hinckley. Deposit £2. Tenders by Sept. 30.

**Hinckley, Leics.**—Making up of Byron Street, Earl Shilton (length approx. 167 yd.), comprising kerbs, carriageway and footpath foundations and surfacing, gullies, gully connections and surface water sewer, for U.D.C. Documents from the Surveyor, Argent House, St. Mary's Road, Hinckley. Deposit £2. Tenders by Sept. 30.

**Hollingbourn, Kent.**—Proposed treatment plant at Kingswood, Ulcombe, for the disposal of cesspool contents, for R.D.C. The work will be carried out in three sections, as follows: (Contract a) The clearance and root grubbing of approximately 10 acres of chestnut woodland and the levelling and ploughing of the site; (b) the construction of access and turning bay, reception tank in concrete and a brick garage-store; (c) the fencing of the site with approximately 975 lin. yd. of cleft chestnut spile fencing and the provision of access gate and posts. Documents from the Surveyor, Council Offices, 73 College Road, Maidstone. Deposit £1 ls., cheque payable to R.D.C. Tenders by Sept. 15.

**Hull.**—Following for City Council: (a) The construction of tarmac road and footpaths and (b) the construction of a service yard at the Bilton Grange Park, Barham Road, Bilton Grange estate. Documents from the Parks, etc., Department, 79 Ferensway, Kingston-upon-Hull. Tenders by Sept. 19.

**Hull, Yorks.**—Reconstruction of the back-road at the rear of 2192, Kenilworth Avenue, and 331/347 Cottingham Road, comprising approx. 3,000 sq. yd. of concrete paving together with drainage works, for City Council. Documents from City Engineer, Municipal Offices, Hull. Deposit £2. Tenders by Sept. 23.

**Luton, Beds.**—Construction of approximately 600 sq. yd. of tarmac road paths with precast concrete edging, and the formation of approximately 1,200 sq. yd. of verges on the Knights Close estate, together with other ancillary works, for R.D.C. Documents from the Engineer and Surveyor, 48 Bute Street, Luton. Deposit £1 ls., cheque payable to R.D.C. Tenders by Sept. 24.

**Morecambe and Heysham, Lancs.**—Widening and improvement, including storm water drainage and ancillary works, of Trumacac Lane and Rothesay Road, approximately 675 lin. yd. for B.C. Applications to the Borough Engineer and Surveyor, Council Offices, Morecambe and Heysham, by Sept. 10. Deposit £2.

**Oundle, Northants.**—Road works, Uppingham Road and Rock Road for U.D.C. Work includes 700 super. yd. tarspraying and chipping, 300 lin. yd. kerbing, and 880 super. yd. two-course tarmac road surfacing. Documents from the Clerk to the Council, Council Offices, 6 North Street, Oundle. Deposit £2 2s. Tenders by Sept. 19.

**\*Port Talbot, Glam.**—Road completion works, Little Warren, for B.C. Deposit £2 2s. Tenders by Sept. 19.

**Renfrewshire.**—Supplying and laying of approx. 18,000 sq. yd. of rolled asphalt surfacing on the Glasgow/Greenock/Monkton trunk road, A.8, between the village of Bishopston and Laigh Hutton Farm, for C.C. Documents from the County Surveyor, County Buildings, Paisley. Tenders by Sept. 20.

**Surbiton, Surrey.**—Resealing of joints in concrete carriageways for B.C. Documents from the office of R. Thirlway, borough engineer and surveyor, Council Offices, Ewell Road, Surbiton. Tenders by Sept. 30.

**Swanage, Dorset.**—Excavation, removal, tipping and spreading of approx. 4,500 cu. yd. of soil for Ulwell Road widening for U.D.C. Documents from the Surveyor, Town Hall, Swanage. Tenders by Oct. 3.

**Towcester, Northants.**—Siteworks for garages on housing estates as follows for R.D.C.: (Contract 1) 10 at Deanshanger; (2) 16 at Towcester; (3) 16 at Blisworth; (4) five at Pottersbury. The works consist of the preparation for and construction of a concrete access to the highway, excavating for and laying hardcore and ashes to form hard-standings, excavating for and laying hardcore and 4 in. concrete bases for the garages, together with necessary drainage. The garages will be supplied and erected by the manufacturers and do not form part of these contracts. Documents from George Berridge, surveyor, 163 Watling Street West, Towcester. Deposit: £1 ls. each. Tenders by Sept. 30.

**West Riding.**—Hemsworth Grammar School—repairs to asphalt roadway and path for C.C. Documents from H. Cockell, assistant divisional education officer, 2 St. John's Square, Wakefield. Tenders by Sept. 17.

**Wharfedale, Yorks.**—Resurfacing of approx. 700 super. yd. of the private road and footpaths serving part of the Moorland Road

housing estate at Bramhope, near Leeds, for R.D.C. Specifications and forms of tender may be obtained from J. L. Thomas, housing manager, 8 Boroughgate, Otley. Tenders by Sept. 21.

## SEWERAGE, SEWAGE AND REFUSE DISPOSAL

**Aberaeron, Cards.**—Cross Inn (New Quay) sewerage and sewage disposal scheme for R.D.C., comprising approximately 950 yd. of 6 in. concrete tube sewers with precast concrete and brick manholes, to be laid with settling tank, filter and other incidental works. Documents from J. Owen Parry and Lewis, Ammanford, or S. G. D. Evans, clerk of the Council, Council Offices, Aberaeron. Deposit £5 5s. Tenders by Sept. 27.

**Doncaster, Yorks.**—Sewer extension, parish of Austerfield, for R.D.C., comprising the laying of approx. 720 lin. yd. of 6 in. and 4 in. stoneware drains, 251 lin. yd. of 4 in. diameter asbestos-cement pumping main and the construction of an underground concrete pump-house and appurtenant works. Documents from the department of J. A. Williams, surveyor, Nether Hall, Doncaster. Tenders by Sept. 23.

**Edinburgh.**—Sewer and drainage works at Bonaly Farm housing site, for City Council, works comprise the construction of approx. 513 lin. yd. of 21 in. diameter reinforced concrete pipe, 1,065 lin. yd. of 18 in. diameter reinforced concrete pipe, 552 lin. yd. of 15 in. diameter reinforced concrete pipe, and 112 lin. yd. of 12 in. diameter steel pipe sewer and clear water drain, and various ancillary works. Documents from City Engineer's Dept., 329 High Street, Edinburgh, 1. Tenders by Sept. 16.

**Fife, Fife.**—Kinglassie drainage scheme (phase IIa) for C.C., comprising the construction of a brick pumping station, reinforced concrete walls, etc., extension of tarmac road roadway, the laying of 875 yd of 2 in. asbestos-cement water main, etc. Applications, in writing to the County Engineer, County Offices, Bellfield, Cupar, by Sept. 10.

**Hereford.**—Laying of approx. 1,400 lin. yd. of 12 in. sewer in Ledbury Road (Northern Area sewer, contract 2, ancillary works, section I), for City Council. Documents from the City Surveyor, Town Hall, Hereford. Deposit £2 2s. Tenders by Sept. 16.

**\*Maidstone, Kent.**—Extensions to Aylesford sewage disposal works sludge pumping station WM18, contract M12, for B.C. Apply by Sept. 23. Deposit £5 5s. Tenders by Oct. 24.

**Neyland, Pems.**—Sewerage and sewage disposal works, contract 5, for U.D.C., comprising construction of two sludge thickening tanks with concrete floor and walls and consolidated rubble-filled earth covered banks, short lengths of 6 in. diameter concrete and cast-iron drains, together with other works incidental thereto. Documents from A. P. I. Cotterell and Son, engineers, 54 Victoria Street, Westminster, S.W.1 Plans also seen at the Council Offices, Neyland, Milford Haven. Deposit £3 3s. Tenders by Sept. 30.

**Oxfordshire.**—Laying of approx. 150 lin. yd. of 18 in. main surface water sewer, together with manholes and other ancillary works in the village of Kidlington for C.C. Documents from the County Surveyor, 8 New Road, Oxford. Tenders by Sept. 19.

**Ramsey, Hunts.**—Laying of connections to recently completed foul sewers and for the reinstatement of trenches for same for U.D.C. The work comprises the laying of about 5,500 yd. of 6 in. and 4 in. diameter drains in varying lengths and the construction of inspector chambers and other sundry works. The number of connections to be made to the sewers is approximately 500. Documents from Pick, Everard, Keay and Gimson, consulting engineers, 6 Millstone Lane, Leicester. Deposit £3 3s. Tenders by Oct. 1.

**Rochford, Essex.**—Construction of approximately 565 lin. yd. of 6 in. diameter foul sewer and appurtenant works at Hall Road, contract 284, for R.D.C. Documents from the Engineer and Surveyor, Council Offices, Rochford. Deposit £2 2s. Tenders by Sept. 22.

**Ross and Cromarty.**—Construction of 600 yd. of 6 in. diameter sewer, together with septic tank, manholes, etc., at the village of Milton, five miles north-east of Invergordon, for C.C. Documents from the County Water Engineer, Burn Place, Dingwall. Tenders by Sept. 16.

**Shepton Mallett, Som.**—Evercrech sewage disposal work for R.D.C.: (a) Laying of approximately 240 lin. yd. of 6 in. diameter g.s.s. sewers, together with the construction of relevant manholes; (b) construction of a sewage disposal works comprising inlet and stormwater chambers, screening and debris chambers, two stormwater tanks each of 19,200 gallons capacity, one upward flow settlement tank of 38,400 gallons capacity, two circular percolating filters each of 370 cu. yd. capacity, two humus tanks each of

25,600 gallons capacity, sludge drying beds of 600 sq. yd. total area, two site pumping stations and other appurtenant works; (c) laying of approximately 850 lin. yd. of 9 in. diameter pipes for extension of the existing effluent outfall, together with the construction of relevant manholes. Applications to W. Herbert Bateman and Partners, consulting engineers, Chesterfield House, Bath-easton, Bath, giving the names and addresses of three engineers under whose direction similar schemes have been carried out. Deposit £5 5s. (cheques payable to R.D.C.). Plans also seen at the Council Offices, Highfield House, Park Road, Shepton Mallet. Tenders by Oct. 3.

**St. Germans, Corn.**—Construction of 165 yd. of 6 in. salt-glazed ware pipes and 180 yd. of 9 in. spun-iron pipe, together with four manholes at the eastern end of Down-derry, for R.D.C. Documents from the Surveyor at the Council Offices, Lower Port View, Saltash. Tenders by Sept. 14.

**Turro, Corn.**—Mylor Bridge sewerage scheme for R.D.C., comprising construction of approximately 5,300 lin. yd. of 9 in., 6 in. and 5 in. spun-iron and salt-glazed ware sewers, together with the construction of all necessary manholes. The contract includes the construction of a sewage pumping station and a sewage treatment works. Documents from Osmond and Lane, consulting engineers, Trevelper Lodge, Trevelper Bridge, Newquay. Deposit £5 5s., payable to R.D.C. Tenders by Sept. 28.

### STREET LIGHTING

**Burnham-on-Sea, Som.**—Supply of 22 sodium lanterns, lamps and electrical gear, and for the supply and erection of 22 concrete street lighting columns, together with the fixing and wiring of the lanterns and electrical gear on the B.3139 and B.3140, contract 37, for U.D.C. Documents from G. Harvey Mayhew, engineer and surveyor, Manor House, Burnham-on-Sea. Deposit £2 2s. Tenders by Sept. 19.

**Cheshunt, Herts.**—Improved street lighting, 1960, for U.D.C., including the dismantling of existing gas and electric street lights and the supply and erection in 12 roads of 62 25 ft. mounting height lighting columns and 147 15 ft. mounting height lighting columns and the fixing of 140-W and 60-W sodium discharge lanterns and control gear. A p.c. sum is included for the supply of lanterns and control gear. Documents from the office of the Engineer and Surveyor, Manor House, Cheshunt. Deposit £2. Tenders by Sept. 16.

**Droitwich, Worcs.**—Street lighting, town centre, for B.C. Deposit £2 2s. Tenders by Oct. 3.

**Haltemprice, Yorks.**—Following for U.D.C.: Supply, erection and bringing into service of sodium lighting using specified lanterns, gear and 25 ft. steel columns; (a) Kingston Road, Willerby, 110 installations; and (b) Hull Road and Wilson Street, Anlaby, 62 installations. Documents from the Engineer and Surveyor, Anlaby House, Anlaby. Deposit £1 each. Tenders by Sept. 12.

**Kirkby, Lancs.**—Group A street lighting, 1960/61, East Lancashire Road, A.580, any or all of the following contracts for U.D.C.: (Contract 60/12) Supply only of 120 group A reinforced concrete columns, complete with brackets; (60/13) supply only of 120 group A totally enclosed 140-W sodium discharge lanterns, together with all lamps and control gear, etc.; (60/14) erection only of 120 group A concrete columns and brackets, fitting and wiring of 140-W sodium lanterns and equipment, and bringing into service of the whole installation. Documents from the office of the Engineer and Surveyor, Council Offices, Kirkby Hall, Kirkby. Deposit £2 each. Tenders by Sept. 12.

**Neath, Glam.**—Following for R.D.C.: Road A.483—Jersey Marine, comprising supply and erection of 47 double-arm and three single-arm columns, and 97 200-W sodium lamps, together with auxiliary gear and wiring. Also the supply and laying of two-core 0.0225 and 0.04 cable, together with a short length of 0.06 cable, approximate total length 2.63 yd. Documents from the Engineer and Surveyor's Department, 18 Orchard Street, Neath. Deposit £3 3s. Tenders by Sept. 20.

**Oakengates, Salop.**—Following for U.D.C.: Supply, erection and installation of concrete lighting columns, lanterns and electrical equipment for 133 group B 60-W sodium lighting units in various district roads in the urban area. Documents from the Engineer and Surveyor, Council Offices, Stafford Road, Oakengates. Deposit £2 2s. Tenders by Sept. 20.

**Orpington, Kent.**—Supply of group B concrete columns and brackets for U.D.C. Documents from L. W. Freeman, engineer and surveyor, Civic Offices, The Walnuts, High Street, Orpington. Deposit £2. Tenders by Sept. 26.

**Oadby, Leics.**—Supply and erection of 31 group B lighting units on Leicester Road and London Road, for U.D.C. The columns are to be aluminium with 60-W sodium lanterns and gear. Documents from the office of the Engineer and Surveyor, Municipal Offices, Oadby Frith, Oadby. Deposit £2 2s. Tenders by Sept. 14.

**Turton, Lancs.**—Erection and installation only of street lighting equipment as follows, for U.D.C.: (a) 30 140-W sodium discharge lamps with prestressed reinforced concrete columns, mounting height 25 ft., control gear and wiring, at Bolton Road and Bradshaw Road A.676, Bradshaw; (b) five 140-W sodium discharge lamps, with steel columns, mounting height 25 ft., control gear and wiring, at Longsight, B.6196, Harwood. Documents from the office of the Engineer and Surveyor, Council Offices, Bromley Cross, near Bolton. Deposit £2 2s., cheque payable to U.D.C. Tenders by Sept. 12.

## AWARDS

### BUILDING AND DECORATING

(See also Housing Schemes)

**Aberystwyth, Cards.**—Erection of a physics and mathematics block at The University College of Wales for College Governors—C. W. Pochins (Manchester), Ltd., King Street Works, Middlewich, Ches. Sir Percy Thomas and Son, architects, 10 Cathedral Road, Cardiff; W. T. Hills and Co., quantity surveyors, 3 Castle Street, Cardiff; Lucas and Pyke, electrical consultants, 25 Caxton Street, Westminster, London, S.W.1; and Norman E. Holloway, heating and engineering consultant, 17 St. Andrews Crescent, Cardiff. Estimated cost £375,000.

**Belfast.**—Erection of headquarters building at Antrim Road for the Milk Marketing Board of Northern Ireland—McLaughlin and Harvey, 34 York Road, Belfast, 15, £200,000. McCutcheon and Wilkinson, architects, 34 High Street, Ballymoney, Antrim; Ogilby and McCutcheon, quantity surveyors, 9 Upper Crescent, Belfast, 7; McAuslan, Abbott and Partners, consultants 16 Bedford Street, Belfast, 2.

**Bolton, Lancs.**—Provision of new battery contactor plant at Springside Works, Little Lever, for United Ebonite and Lorival, Ltd. Elliott Cox and Partners, architects, 172 Buckingham Palace Road, London, S.W.1—William Townson and Sons, Ltd., Higher Swan Lane, Bolton, £146,000. Work has commenced.

**Bracknell, Berks.**—Erection of a laboratory, office blocks and ancillary buildings at Western Road for Ferranti, Ltd. Ove Arup and Partners, consulting engineers 13 Fitzroy Street, London, W.1—Howard Farrow, Ltd., Highfield Road, London, N.W.11, £242,000.

**Camberwell.**—Reinforced concrete construction of new science block for Alwyn's Boys' School, Townley Road, Dulwich, London, S.E.21—The Modular Concrete Co., Ltd., Staines Road, Bedfont, Middx., £15,239.

**Cambridge.**—Erection of new head office and printing works at 51 Newmarket Road for Cambridge Daily News—Holland & Hannen and Cubitts (Great Britain), Ltd., 1 Queen Anne's Gate, London, S.W.1. L. A. Culliford and Partners, architects, 47 Essex Street, Strand, London, W.C.2. S. W. Appleyard and Partners, quantity surveyors, 16 John Street, London, W.C.1, and Andrews Kent and Stone, consulting engineers, 60-66 Wardour Street, London, W.1. Estimated cost £170,000.

**Chester-le-Street, Dur.**—Erection of bakery and offices for Graves (Bakers), Ltd., Pick-tree Lane, Chester-le-Street H. A. Young, architect, 37 Eccleston Square, London, S.W.1—Wimpey and Co., Ltd., Orchard House, Fenwick Terrace, Newcastle upon Tyne.

Rebuilding Barclays Bank—J. and W. Lowry, 64 Bath Lane, Newcastle upon Tyne.

**Consett, Dur.**—Erection of shops in Middle Street on the site of the Queens Hotel for the Arndale Property Trust, Bank Street, Bradford—Leslie and Co., 80 Woodland Road, Darlington. Work has commenced.

**Crawley, Sussex.**—Erection of new factory for timer switch of electronics plant at Fleming Way for Mallory Batteries, Ltd.—Howard Farrow, Ltd., Highfield Road, London, N.W.11, £143,000. Anders and Dalton, architects, 98-100 High Road, Ilford, Essex; A. N. Woodward, quantity surveyor, 62a Station Road, Upminster, Essex.

**Croydon, Surrey.**—Construction of one eight-storey reinforced concrete frame in-

cluding staircases, etc., and one three-storey frame at Mayday Road, Thornton Heath, for B.C.—Modular Concrete Co., Ltd., Staines Road, Bedfont, Middx., £12,117.

**Croydon, Surrey.**—Erection of the new Catholic Church of St. Dominic's in Violet Lane, Waddon, for St. Dominic's Parish. Tomei and Maxwell, architects, 24 Dean Street, London, W.1—R. D. Hope and Co., Ltd., 15 Selsdon Road, South Croydon. Estimated cost £21,215.

**Ellesmere Port, Ches.**—Extension of the existing female changing block, with living accommodation over, at the Rivacre Valley Swimming Pool, contract 296, for B.C. C. W. Davies, engineer and surveyor—Thomas Warrington and Son, 82 Station Road, Ellesmere Port, £27,975 (accepted); Cartwright Bros., £30,298; W. E. Gould, £32,750; John Perkins and Son, Ltd., £32,520. Work about to commence.

**Ewhurst, Surrey.**—Adaptations and alterations at Sayers Croft for L.C.C.—J. and J. Stanford, Ltd., Warrnam, Sussex, £10,327.

**Finsbury.**—Design and construction of pile and base foundations to blocks 1 and 2 at Wenlake estate extension for L.C.C.—The Pressure Piling Co. (Parent), Ltd., 637 Old Kent Road, London, S.E.15, £7,046.

**Forfar, Angus.**—Erection of 11 garages at Dundee Road for B.C.—Webster and Pattullo, Kingsmuir, Forfar, £1,004.

**Gateshead, Dur.**—Erection of new St. Peter's Church at Kells Lane. E. A. Gunning, architect, 18 Eldon Square, Newcastle upon Tyne—J. H. Fisher and Co. (Builders), Ltd., 12 Lansdowne Terrace, Gosforth. Work not yet started.

**Hackney.**—Improvements and redecoration to the Pond House premises, Clapton Park Secondary School, for L.C.C.—S. C. Grover, Ltd., Grange Works, Clinton Road, London, E.7, £7,878.

**Hampstead.**—Erection of a block of 24 luxury flats at north side of Primrose Hill, London, N.W.3. Braddock and Martin-Smith, architects, East Gallery, St. John's Chapel, London, N.W.8—Howard Farrow, Ltd., Highfield Road, London, N.W.11.

**Ilford, Essex.**—Erection of shops and offices at 6-14 High Street for Warnock Estates, Ltd.—Hammond and Miles, Ltd., Scratton Road Works, Ilford, estimated cost £42,000. Ardin and Brookes and Partners, architects, 129 Mount Street, Berkeley Square, London, W.1, and Stanley Young, and Co., quantity surveyors, 5 Mansfield Street, London, W.1. Work has commenced.

**Isleworth, Middx.**—Erection of a building to replace existing warehouse at Gillette Corner, Great West Road for Gillette Industries, Ltd.—Howard Farrow, Ltd., Highfield Road, London, N.W.11, estimated cost £77,000. Dodge and Reid, architects, 72 High Street, Brentford; J. P. Jelly and Partners, quantity surveyors, 71 Grove Road, Hounslow, Middx.

**Kettering, Northants.**—Conversion of former Empire Cinema, Eskdail Street, into a warehouse for A. R. and W. Cleaver, Ltd., Blackwell, Storr and Scott, architects, Gold Street Chambers, Kettering—D. J. Fletton, Ltd., 6 De Vere Road, Thrapston, Northants.

**Lambeth.**—Adaptations at Loughborough Primary School for L.C.C.—R. H. Lynn and Co., Ltd., 49 Acre Lane, London, S.W.2, £11,789.

**Loughborough, Leics.**—Erection of an assembly hall with classrooms, etc., at Burton Walks for the Governors of the Loughborough Endowed Schools—F. R. Roper and Co., Ltd., Lisle Street, Loughborough.

**Moir, Down.**—Installation of plumbing and electrical work to 66 houses at Risk for R.D.C.: Electrical—I. Titterton, Tullygally, Lurgan, £1,412; plumbing—W. McCormick, Garland Avenue, Lurgan, £5,791.

**Norwich.**—Following for City Council: Erection of 76 garages at various sites—Ford and Carter, Ltd., Baltic House, Mountgate, Norwich, £14,226; new central library at Bethel Street—Marshall-Andrew and Co., Ltd., St. Andrew's House, Broadway, St. James Park, London, S.W.1, £256,952 (recommended).

**Nottingham.**—Following for City Council: Erection of a cowhouse at Burrows Farm, Clifton—W. R. Bloodworth and Sons, Ltd., Inglehurst, Wilford Lane, Nottingham, £1,944; six garages at Middlefell Way—J. Powell and Sons (Builders), Ltd., 3 Barnston Road, Nottingham, £1,050; improvement of paddling pool at Bulwell Hall Park—W. J. Simms, Sons and Cooke, Ltd., Haydn Road, Sherwood, Notts., £962 (recommended).

**Orrell, Lancs.**—Erection of a new hotel at City Road, for Magee Marshall and Co.—John Dickinson and Co. (Bolton), Ltd.,



Fairclough Street, Bolton. R. H. Graddon, architect (to Magree Marshall and Co.), and E. R. Duckworth and Partners, quantity surveyors, 21 Mawdesley Street, Bolton. Work has commenced.

**Oxford.**—Extension to Queen Elizabeth House, St. Giles, for Trustees of Queen Elizabeth House—Galbraith Bros., Ltd., Crayford Bridge, Crayford, Kent. R. E. Enthoven, architect, 4 Raymond Buildings, Gray's Inn, London, W.C.1. Wilson, Colbeck and Partners, quantity surveyors, '86 Old Brompton Road, London, S.W.7, and R. W. Steele and Partners, heating consultants, 128 Finchley Road, London, N.W.3.

**Paddington.**—Erection of a four-storey office and shop development at Queensway, London, W.2, for Queensleigh Properties, Ltd.—Wates, Ltd., 1258-1260 London Road, London, S.W.16, £52,422. Julian Keyes, architect, 13 Wimpole Street, London, W.1; Mark H. Smullen and Partners, consulting engineers, 9 Mansfield Street, W.1; Basil A. Cohen, quantity surveyor, 60 Berners Street, W.1.

**Preston, Lancs.**—Construction of a highly enriched uranium recovery plant, Salwick for United Kingdom Atomic Energy Authority—William Townson and Sons, Ltd., Higher Swan Lane, Bolton, £475,386. Work to commence Oct. 1.

**Reading, Berks.**—Erection of a Memorial Hall at Bucklebury for Management Committee—E. A. Bance and Sons, Ltd., Ball Hall, Woolton Hill, Highclere.

**Salford, Lancs.**—Construction of social club, party headquarters and steward's flat at Seedley Terrace for the Ashfield Labour Club and Institute—Reema (Chesterfield), Ltd., Storrth Lane, Chesterfield, Derbys. Estimated cost £20,000.

**Stockton-on-Tees, Dur.**—Alterations to shops in Dovecot Street for Stockton Co-operative Society, Ltd., Wellington Street, Stockton—Direct Labour.

**Sunderland, Dur.**—Erection of a public abattoir, meat market and cold store, for B.C.—Tarslag, Ltd., Bowesfield Lane, Stockton-on-Tees, £284,000.

**Swansea.**—Erection of motor showrooms at corner of Kingsway and Dillwyn Street for James Howell and Co., Ltd.—E. Taylor and Co., Ltd., Treforest Industrial Estate, Treforest, near Pontypridd. Estimated cost £108,500.

F. G. Bruton and Mace, architects, 31 Cathedral Road, Cardiff; L. C. Patterson, W. T. Seaton and Co., quantity surveyors, 11 Cathedral Road, Cardiff, and Hubert Jenkins, consulting engineer, 33 Cathedral

Road, Cardiff. (Excavation for basement car park almost complete—commencing structural concrete work to basement.)

**Tralee, Eire.**—Erection of factory at Tralee for Kingdom Tubes, Ltd. A. G. Jennings, consulting engineer, O'Connell Street, Sligo—J. J. O'Sullivan and Sons, The Basin, Tralee, £26,999. Work has commenced.

**Tynemouth, Northumb.**—Erection of new centre for the West Chirton and Moor Park Residents' Association—William Stockdale, architect, 73 Howard Street, North Shields—Hastie D. Burton, Ltd., King Street, North Shields, £5,900.

**Walsall, Staffs.**—Final Section of the T. P. Riley Secondary School for Co. E.C.—F. and E. V. Linford, Park Road, Cannock, Staffs., £143,837.

**Wandsworth.**—Reconditioning 152-166 East Hill for L.C.C.—F. Allen and Sons, Ltd., 110 Amersham Vale, London, S.E.14, £5,537.

**Worcester.**—Erection of a kitchen and small hall/dining room at Christopher Whitehead Boys School for City Council—Joseph Wood and Sons (Worcester), Ltd., Gregory's Mill Street, Worcester, £21,432 (recommended).

#### DEMOLITION

**Nottingham.**—Demolition of 73-83 Sneinton Road and 1 Upper Eldon Street and 12 Market Place and two adjoining properties for City Council—J. Watts and Sons (Contractors), Ltd., Porchester Road, Thorneywood, Nottingham, £1,348 and £100, respectively (recommended)

#### ELECTRICAL

**Bury, Lancs.**—Electrical installation at the School of Arts and Crafts for B.C.—T. Halsall, 93 Bolton Road, Bury, Lancs.

**Havant and Waterloo, Hants.**—Installation of power points in 356 pre-war Council houses in seven groups of 28, 25, 24, 117, 56, 58 and 48 houses for U.D.C.—R. G. Symonds, 31 Arundel Road, Gosport, Hants.

**Norwich.**—Renewing of electric wiring and installation of power points at Angel Road housing estate, for City Council—(27 dwellings) K. Clarke, 15 Chalk Hill Road, Norwich, £1,125; (133 dwellings) Eastern Electricity Board, £4,908 and (28 dwellings) B. S. Hipperson, The Kernel, Walnut Hill, Surlingham, £1,099 (recommended).

#### FENCING

**Ilford, Essex.**—Replacement of boundary fences to parks and cemeteries for B.C.—Bell and Webster, Ltd., Essex Road, Hoddeston, Herts., £9,112 (accepted); The Croft

Granite, Brick and Concrete Co., Ltd., £18,827; Metropolitan Concrete Works, Ltd., £15,959.

#### HARBOURS, PIERS AND SEA DEFENCE WORKS

**Whitby, Yorks.**—Improvements to harbour facilities at Staithes, including widening the existing slipway and replacing dilapidated groyne for the Staithes Harbour Commissioners—J. G. Thompson and Sons (Contractors), Ltd., 28 Fowler Street, South Shields, £4,000.

#### HEATING AND VENTILATING

**Enniskillen, Fermanagh.**—Low pressure hot water heating, hot, cold and drinking water service installations and additional sleeping accommodation, R.U.C. Depot, Enniskillen, for Ministry of Finance—Musgrave and Co., Ltd., St. Ann's Works, Albertbridge Road, Belfast, 5.

**Hackney.**—Provision of heating, hot and cold water services at Fleetwood Primary School, for L.C.C.—Ellis (Kensington), Ltd., 10 Kendrick Place, London, S.W.7, £7,914.

#### HOUSING SCHEMES

**Adwick-le-Street, Yorks.**—Block of four shops with flats, also 16 flats at Lawn Avenue, Woodlands, including drainage and other works, for U.D.C. W. S. Ellis, engineer and surveyor—T. Coggon and Co., Ltd., Piping Lane off Watch House Lane, Doncaster. Work about to commence.

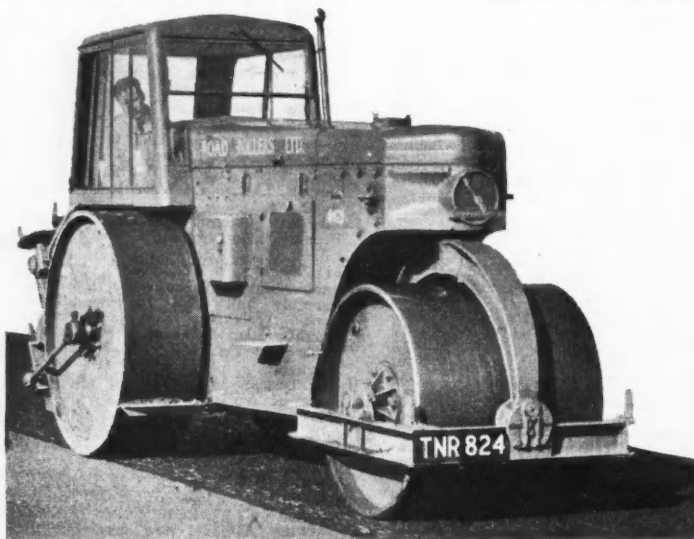
**Blackburn, Lancs.**—Sixty-six dwellings at Burnley Road redevelopment for B.C.—Middleton and Co. (Contractors), Ltd., Bank Street Sidings, Blackpool, £85,572 (recommended).

**Bolton, Lancs.**—Two blocks of maisonnettes, comprising eight dwellings and 18 garages at Eastfield estate, for B.C.—Direct Labour (recommended). Estimated cost £14,000.

**Clogher, Tyrone.**—Thirty-six houses at Five-miletown for R.D.C.—McCaughy Bros., Donaghmore, £74,429.

**Cookham, Berks.**—Block of four flats at 39 Sawyres Crescent, Woodlands Park for R.D.C.—Veevers Bros., £6,356 (subject to Ministry approval).

**Ellesmere Port, Ches.**—Forty-three traditional houses and two brick garages at North Whitby estate, part IV, contract 291, for B.C. C. W. Davies, engineer and surveyor—Thomas Warrington and Son, 82 Station Road, Ellesmere Port, £68,607. Work about to commence.



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**Glasgow.**—Three hundred and eight houses in four multi-storey blocks in the Hutchesontown-Gorbals area for City Council—Direct Labour, £543,995.

**Hartlepool, Dur.**—Thirty-two houses and 16 two-storey flats on the Milbank Crescent clearance area for B.C. J. Wilkin, engineer—Atter and Davison, 41 Northgate, Hartlepool, £65,476. Work to commence Oct. 1.

**Hull.**—One block of 12-storey flats at Nor-nabell Street for City Council—Truson, Ltd., 35-41 Lower Marsh, London, S.E.1 (design and erection of concrete frames) and William Townson and Sons, Ltd., Higher Swan Lane, Bolton. Work has commenced.

**Lanarkshire.**—Erection of the following for C.C.: Tannochside, Burnhead 14th development, 136 houses and 47 garages—George Wilson (Stonehouse), Ltd., Loch Park, Stonehouse, estimated cost, £196,349; Blantyre, Coatshill 6th development, 88 houses and 18 garages—Direct Labour, £123,550; Blackwood, Thornton Road 3rd development, 58 houses and 14 garages—Direct Labour, £87,428; Cambuslang, Cathkin 2nd development, 72 houses—Direct Labour, £114,688.

**Liverpool.**—Two blocks of 11-storey flats at Beechwood estate for City Council—Truson, Ltd., 35-41 Lower Marsh, London, S.E.1 (design and erection of concrete frames) and William Townson and Sons, Ltd., Higher Swan Lane, Bolton. Work to commence Oct. 1.

**Mansfield Woodhouse, Notts.**—Six bungalows on the Pump Hollow housing estate for U.D.C. W. W. F. Shaker, engineer and surveyor—Adkin and Wild, 1a Oxford Street, Sutton-in-Ashfield, Notts., £8,041 (accepted); W. Wright and Sons, £8,189; Mekin Construction Co., Ltd., £8,294; Herbert Evans and Sons, £8,325; Harvey Bates, £8,986.

**Newbury, Berks.**—Twenty-two dwellings at Bardown, Chieveley, for R.D.C.—Gregory Housing, Ltd., 21 Farncombe Road, Worthing, Sussex, £3,668.

**Oakham, Rutland.**—Erection of the following for R.D.C.: (a) Four houses and three bungalows at Market Overton; (b) five bungalows at Whissendine, with site works, etc. Pick, Everard, Keay and Gimson, architects, 6 Millstone Lane, Leicester—Wheeler and Wright, 44 Barkby Road, Syston, Leics., (a) £13,520, and (b) £7,781, respectively.

**Paddington.**—Construction of blocks 4, 6 (part), 7, 8 (part), 16, 18 and 19 of dwellings at Warwick Crescent site, for L.C.C.—Unit Construction Co., Ltd., Feltham, Middx., £324,598.

**Reigate, Surrey.**—One block of 16 maisonnettes with stores under and one block of 10 maisonnettes—The Dome estate (North Street), Redhill, for B.C. G. G. Sanderson, engineer—S. G. and A. Agombar, Tulse House, Elmers End Road, Beckenham, Kent, £52,897 (accepted); Garrad and Sons, Ltd., £52,938; Greenaway and Son, Ltd., £55,445; Mitchell (Chipstead), Ltd., £56,954; Pitman Bros., Ltd., £69,699.

**Scarborough, Yorks.**—Twenty-four flats at Scalby Road for B.C.—F. Shepherd and Son, Ltd., Blue Bridge Lane, York, £44,538.

**Shepton Mallet, Som.**—Erection of houses at the old gasworks site, Stratton-on-the-Fosse for R.D.C.—J. Biddiscombe and Sons, Wanstrow, near Shepton Mallet, £29,050.

**Taunton, Som.**—(a) Eight houses and eight bungalows at Bishops Lydeard, and (b) 12 dwellings and five garages at Bishops Hull, for R.D.C.—(a) Standerwick and Son, Ltd., Taunton Road, Bridgwater, £26,444; (b) Stansell and Son (Taunton), Ltd., Billet Street, Taunton, £21,442.

#### MATERIALS AND SUPPLIES

**Nottingham.**—Supply of the following for City Council: 7,000ft. of alloy scaffolding tube—Scaffolding (Great Britain), Ltd., Colwick Road, Nottingham, £1,210; two tons of 1in. and one ton of 3in. copper tube—John Berry, Ltd., 70a Shakespeare Street, Nottingham, £1,067; 850 gallons of synthetic enamel paint (green) and 650 gallons of undercoat—J. Mason, Ltd., Nottingham, £1,577 (recommended).

#### MISCELLANEOUS

**Scotland.**—Aerial survey of 61 miles of roads in four counties for Scottish Home Department—Hunting Surveys, Ltd., 6 Elstree Way, Boreham Wood, Herts.

#### PLANT AND MECHANICAL TRANSPORT

**Ashton-in-Makerfield, Lancs.**—Supply of a Karrier Gamecock dual-tip refuse collection vehicle and trailer for U.D.C.—Rootes, Ltd., Knott Mill, Manchester, 15, £2,448.

**Ballyclare, Antrim.**—Supply of a new diesel Land-Rover, with long chassis and truck cab for the Mid-Antrim Waterworks Joint Board—The General Motor Works, Ltd., Ballymoney Road, Ballymena, £925 (less allowance of £275 for petrol Land-Rover).

**Coventry.**—Supply of 24 industrial trucks for Standard-Triumph International—Lansing-Bagnall, Ltd., Kingsclere Road, Basingstoke, Hants, £65,000.

**Eastbourne, Sussex.**—Supply of following for B.C.: Two Bedford 15cwt. vehicles—Mansfield, Ltd., 17 Cornfield Road, Eastbourne, £1,124; one 22/30 cu. yd. Paxit Major II refuse collecting vehicle, powered by a Perkins P.6 diesel engine, together with trailer towing attachment and power-operated loader and compressing plate—Dennis Bros., Ltd., Guildford, Surrey, £3,315 (recommended).

**Faversham, Kent.**—Supply of one 12 cu. yd. end loading refuse collecting vehicle, fitted with means of compressing refuse, for B.C. A. C. E. Richardson, engineer—Bligh Bros., Ltd., The Mall, Faversham, £2,559.

**Tyldesley, Lancs.**—Supply and delivery of a petrol engine small type mechanical road sweeper, complete with spare set of brushes, painting and lettering the vehicle for U.D.C.—Rootes, Ltd., Olympia, Chester Road, Manchester, 15.

#### PLAYING FIELDS, PARKS, ETC.

**Hampstead.**—Laying out of gardens at Hilgrove estate for L.C.C.—A. Stevens, Snr., Woodford Wells, Essex, £6,927.

**Nottingham.**—Site levelling and fencing at Mill Street playing field for City Council—Munro Plant, Ltd., Sherbrooke Road, Daybrook, Nottingham, £1,452 (recommended).

**Redcar, Yorks.**—Levelling of trunk road playing fields for B.C. K. W. Ash, borough engineer—Dowsett Engineering Construction, Ltd., Dowsett House, Durham Road, Low Fell, Gateshead, £9,802.

#### ROADS, BRIDGES AND SITE WORKS

**Avoca, Wicklow, Eire.**—Erection of a bridge across the Avonmore for C.C.—Cementation Co. (Ireland), Ltd., Adelphi Quay, Waterford, £17,655.

**Baildon, Yorks.**—Surfacing approximately 5,000 sq. yd. of carriageway at the Knoll estate with hot rolled asphalt, and executing the necessary works of kerb

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raising and surface preparation, for U.D.C.—Trinidad Lake Asphalt, Liverpool.

**Bedfordshire.**—Following for C.C.: Making-up of the following roads: Suncote Avenue and Barrie Avenue, Dunstable; St. Michael's Avenue, Houghton Regis; Laburnum Grove, Streatley; and Brightwell Avenue, Totternhoe—C. Firbank and Son, Ltd., 276a Dallow Road, Luton, £9,318. Removal of approximately 3,000 sq. yd. of old material, regulating with gravel asphalt, and resurfacing with granite asphalt on the London-Edinburgh-Thurso trunk road route A.1, Langford Road to The Plough, west carriageway—Wirksworth Quarries, Ltd., 286 Pentonville Road, London, N.1, £3,195.

**Blackburn, Lancs.**—Heating and planing of trunk road (part) for B.C.—W. and J. Glossop, Ltd., St. George's Place, York (recommended).

**Bolton, Lancs.**—Following for B.C.: Improvement of the A.6 trunk road between Hulton Lane Ends and Cat Row—Nor-Pave, Whalley Road Works, Altham West, Accrington; making-up of Kermoor Avenue, Farnborough Road, Craighall Road, Eastgrove Avenue, Horton Avenue and Pendle Avenue—A. Brett (Contractors), Ltd., Station Buildings, Grim-sargh, Preston, Lancs (recommended, subject to Ministry approval).

**Dartford, Kent.**—Following works, comprised in the Kent approach to the Dartford Tunnel, for M.O.T.: (1) The construction of about 3,000 yd. of dual carriageway, with a cycle track, footways and reserves, including reinforced concrete underpass bridges, a cyclist subway, concrete-encased steel girder bridges, with reinforced concrete decks, over the railway, a toll plaza and piled carriageways; (2) works of sewerage and drainage, including about 1,100 yd. of sewers, a sewage pumping station, and road drainage installations; and (3) earth-works, including about 330,000 cu. yd. of open excavation and the construction of floodbanks, and other ancillary works. Mott, Hay and Anderson, consulting engineers, 9 Idlesleigh House, Caxton Street, Westminster, London, S.W.1—Sir John Jackson, Ltd., 53 Victoria Street, London, S.W.1, £758,755.

**Eastbourne, Sussex.**—Making-up of Coombe Lane (from Edensor Road to Rowsley Road) for B.C.—H. Pannett, Ltd., Lottbridge Drive, Eastbourne, £1,276 (accepted); Bensted Contractors, Ltd., £1,395.

**Havant and Waterloo, Hants.**—Following for U.D.C.: Improvement of Langstone Road, Havant (B.2149), from Langstone Bridge to High Street, Langstone, construction of

a car park, between South Street and Nile Street, Emsworth, and improvement of Havant Road, North Hayling (B.2149) from White's Corner to Victoria Road—Surface Maintenance Services, Ltd., Durham House, 124 Old Christchurch Road, Bournemouth.

**Heywood, Lancs.**—Asphalt surfacing of Bamford Road for B.C.—Neuchatel Asphalt (Contracting), Ltd., Whit Lane, Manchester, 6 (recommended).

**Hucknall, Notts.**—Following works for U.D.C.: (a) Highway improvement works within the urban district, comprising approximately 670 tons coated macadam; 370 lin. yd. precast concrete kerbs; 1,800 super. yd. of 12 in. stone base to carriageway; (b) Hayden Lane improvement, consisting of the construction of approximately 1,000 lin. ft. of granular base carriageway, with precast concrete kerbs, base course tar-macadam, drainage, and ancillary works; (c) surface dressing of highways, consisting of approximately 94,200 sq. yd. of carriageways, 14,800 sq. yd. of footpaths, and 2,900 sq. yd. of heating and planing of carriageways, all within the urban district—(a) Herbert Ashley, Sheepbridge Lane, Mansfield; (b) J. Enness and Co., Papplewick Lane, Hucknall, Notts.; and (c) S. Sutcliffe and Sons, Ltd., Cragg Road, Mytholmroyd, Yorks.

**Huntingdon.**—Construction of an access road at the industrial site for B.C.—D. J. Griffith, Cambridge, £7,814 (recommended); D. and H. (Contractors), Cambridge, Ltd., £7,863; Kimbell Construction, Ltd., £8,718; F. B. Thackray and Co., Ltd., £9,000; D. M. Marriott and Son, £9,657.

**Irlam, Lancs.**—Making-up of part of Allotment Road, Cadishead for U.D.C. F. K. Emerson, engineer and surveyor—Cain and Vosper, 9 Kingsmere Avenue, Levenshulme, Manchester, £929.

**Meopham, Kent.**—Cold bitumen spraying and gravel chip dressing drive at Amhurst, South Street, for J. C. Stevenson—Hodsons, Ltd., 17 Wrotham Road, Gravesend.

**Middleton, Lancs.**—Construction of access road and car park to youth centre at Martindale Crescent for B.C. G. Svddall, engineer and surveyor—Cain and Vosper, Ltd., 9 Kingsmere Avenue, Levenshulme, Manchester, 19.

**Norwich.**—Widening of Kett's Hill (second stage) for City Council—Direct Labour (recommended). Estimated cost £38,180.

**Spennborough, Yorks.**—Making-up of Fountain Street, Roberttown, for B.C.—Isaac Timmins, Dalton, Huddersfield.

**Stepney.**—Construction of roads and sewers

at Mountmorres Road area for L.C.C.—Kirk and Kirk, Ltd., 287 Upper Richmond Road, London, S.W.15, £26,832.

**West Bridgford, Notts.**—Demolition of Lady Bay Bridge, and other roadworks for U.D.C., comprising the filling-in of part of the Grantham Canal adjacent to the bridge; construction of 840 sq. yd. of flexible foundation carriageway, kerbing, tarred macadam footpaths; laying of 45 lin. yd. of 21 in. diameter concrete tubes, and other ancillary works. R. Dewsbury, engineer and surveyor—Thomas Fletcher and Co., Forest Road, Mansfield, Notts., £11,773.

**Worcester.**—Following for City Council: Making-up part of Kingston Avenue and roadworks in connection with the redevelopment of St. Catherine's Vale—M. Walsh and Sons, Ltd., Charles Way, Malvern, Worcs., £2,503 and £1,553; surface dressing of certain roads during year—A. M. Tweedie and Co., Ltd., £3,934 (recommended).

#### SEWERAGE, SEWAGE AND REFUSE DISPOSAL

**Basildon, Essex.**—Surface water sewerage scheme, Billericay area II, part I, for U.D.C.—R. W. Hill and Co., Ltd., Beaches Drive, Chelmsford, £8,986.

**Birmingham.**—Construction of four reinforced concrete humus tanks, 80 ft. internal diameter, with associated supply and effluent system, including excavation, plain and reinforced concrete, cast-iron and concrete mains, mechanical and electrical equipment at Minworth new works (1956) for the Birmingham Tame and Rea District Drainage Board. R. Vincent Davis, engineer to the Board—C. Bryant and Son, Ltd., Small Heath, Birmingham, 10, £149,034.

**Bolton, Lancs.**—Culverting of stream at Oldhams estate for B.C.—Direct Labour (recommended). Estimated cost £1,944.

**Eastbourne, Sussex.**—Following for B.C.: Main drainage scheme, stage II phase III, low-level sewer in seaside, from Archery pumping station to Whitley Road—William Press and Son, Ltd., Willoughby Lane, Tottenham, London, N.17, £33,345 (recommended); Walter Llewellyn and Sons, Ltd., £46,328; Nicholson Construction Co., Ltd., £51,996; Bridgewater Bros. (Public Works Contractors), Ltd., £69,563; H. Pannett (Eastbourne), Ltd., £77,215.

Supply of concrete pipes and manholes—William Press and Son, Ltd., £6,703 (recommended).

**Nottingham.**—Repairs to primary digestion tank roof at sewage disposal works for



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City Council—Ames Crosta Mills, Ltd., Heywood, Lancs., £835, and Direct Labour, £1,665 (recommended).

**Ross and Cromarty.**—Construction of approximately 1,300yd. of 6in. sewers, together with septic tank, manholes and all relative works, at Inver in the parish of Tain, for C.C.—J. Baxter and Sons, (Contractors), Ltd., Rogie Quarry, Contin.

**Shipston-on-Stour, War.**—Tysoe sewerage and sewage disposal scheme, contract 9, for R.D.C., comprising the laying of about three miles of 6in. salt-glazed ware sewer and quarter mile of 4in. asbestos-cement pumping main and the construction of 70 concrete tube manholes, an ejector station and sewage disposal works, comprising sewage pumping station, reinforced concrete settling, digestion and humus tanks, biological filter, sludge drying beds and appurtenant pipelines, chambers, roads, paths and fencing. J. D. and D. M. Watson, consulting engineers, 67 Tufton Street, Westminster, S.W.1—Thyssen Shaft Sinking Co., Ltd., Wesley House, Coombe Lane, Malden, Surrey, £58,600.

**Surrey.**—Construction of 26,900 sq. yd. of sludge beds, access roads, light railway track, pipelines, and other appurtenant works. Hogsmill drainage, contract 16, for Hogsmill Valley Joint Sewerage Board. John Taylor and Sons, consulting engineers, Artillery House, Victoria Street, Westminster, S.W.1—Shellabear, Price, Contractors, Ltd., Auckland House, New Zealand Avenue, Walton-on-Thames, Surrey, £45,000. Work has commenced.

#### STREET LIGHTING

**Mansfield Woodhouse, Notts.**—Painting of 127 group A steel columns for U.D.C.—Abacus Municipal, Ltd., Sutton-in-Ashfield, Notts.

**Nottingham.**—Supply of 400 A type swan-neck brackets with spigot caps for City Council—A. C. Ford, Ltd., Pear Tree Lane, Dudley (recommended).

**St. Albans, Herts.**—Painting of 168 group A street lighting columns for City Council—Abacus Municipal, Ltd., Sutton-in-Ashfield, Notts.

#### GOVERNMENT CONTRACTS

**Air Ministry.**—Contracts to the value of £4,000 or over for the week ended Aug. 26:

Building works: Lindholme, Yorks.—Fred Pearson and Co., Ltd., 32 Cemetery Road, Doncaster, Yorks.; Misson, Notts.—Charles R. Price, Barnsley Road, Doncaster, Yorks.; Luffenham, Rutlands.—A. J. G. Potter and Sons, Ltd., High Street, Stanwick Wellingborough, Northants.

Surfacing work (existing paved areas). Coleraine, Wilts.—O. J. Elliott and Co., Ltd., 339 Badminton Road, Winterbourne, Bristol.

Artificers' work: Shepherds Grove, Suffolk, etc.—Haymills (Contractors), Ltd., Hanger Green, Western Avenue, London, W.5; Hereford, Herts.—J. Houston, Ltd., Blakemere House, Blakemere, Herts.

Internal heating installation: Leconfield, Yorks. and Wattisham, Suffolk—Walter Cowen, Ltd., 11 Souldern Road, London, W.14.

Installation of air conditioning plant: Masirah, Arabian Sea—Brightside Heating and Engineering Co., Ltd., Vincent House, Vincent Square, London, S.W.1.

Painting work: London Airport, Hounslow, Middx.—William Herd and Co., Ltd., 95 Baker Street, London, W.1.

**Metropolitan Police.**—Recent contracts placed include:

External and internal repainting of police boxes, Y Division—Chas. S. Foster and Sons, Ltd., £760.

External painting and repairs and internal redecorations, Egerton, Rickmansworth Road, Harefield—H. Pickerrill, Ltd., £690.

External painting and part internal redecorations, Homestead, Chapel Walk, Hendon and Victoria Road, Mill Hill—Buckingham and Sons, Ltd., £998.

External painting and part internal redecorations, Greencroft Gardens and Fairhazel Gardens, N.W.6—C. Baines (Contractors), Ltd., £1,232.

External painting and repairs and part internal redecorations, Connaught House, Connaught Gardens, N.10—J. H. and W. Heal, Ltd., £738.

External painting, Lanherne House, The Downs, Wimbledon—E. A. Thorn and Sons, £840.

**Ministry of Works.**—Contracts placed for week ended Aug. 20:

Caithness: P.O. Workshop, Wilson Street/Cooper Street, Thurso—erection—Alex. Sutherland, Ltd., 70 Princes Street, Thurso.

Lanarkshire: ex-Hutcheson Grammar School, Crown Street, Glasgow—alterations from and adaptations to office accommodation—Thos. Stewart, Ltd., 24-48 Lochleven Road, Battlefield, Glasgow, S.2; Post Office Stores, Newhouse—new concrete hardstanding—R. Paterson and Sons, Ltd., Milton Street, Airdrie.

Leicestershire: Telephone Exchange, Birstall, Leicester—erection—Gee, Walker and Slater, Ltd., Uttoxeter Old Road, Derby.

London: Houses of Parliament—new staircase—Higgs and Hill, Ltd., South Lambeth Road, S.W.8; Admiralty, Whitehall, S.W.1—heating services—Comyn Ching and Co. (London), Ltd., 19-21

Shelton Street, W.C.2; Royal Automatic Telephone Exchange, Stepney, E.1—internal decorations—South London Decorators, Ltd., 9-11 Streatham High Road, S.W.16; Mount Pleasant Sorting Office, E.C.—alterations to escalator block—W. E. Pearce and Son, Ltd., High Road, Edgware, Middlesex: Branch Post Office, Shepperton—erection—W. and E. Simmons, Ltd., 4 Rydens Road, Walton-on-Thames, upon Tyne.

Northumberland: Ministry of Pensions and National Insurance, Benton, Newcastle upon Tyne—extensions—Tate and Holmes, Ltd., Benwell Village, Newcastle upon Tyne.

Nottinghamshire: Joint Office Building, Queens Hall, Belvedere Street, Mansfield—alterations—Brookes and Butler, Ltd., Victoria Street, Mansfield.

Staffordshire: Highfields Estate, Stafford—erection of houses for the Prison Commission—M. A. Boswell (Contractors), Ltd., 124 Compton Road, Wolverhampton.

**Post Office.**—Contracts for duct laying, etc., works to the value of £4,000 and over placed during the week ended Aug. 27:

C.D.L. Construction Co., Ltd., Church Road, Egham, Surrey; The Eden Construction Co., Ltd., English Damside, Carlisle, Cumb.; McNicholas Construction Co., Ltd., 31a Cricklewood Broadway, London, N.W.2; E. W. Moulson and Sons, Ltd., Forrester's Yard, High Street, Wibsey, Bradford, 6, Yorks.; The Norwest Construction Co., Ltd., Litherland, Liverpool, 21; D. J. Sullivan (Bristol), Ltd., 16 Burlington Road, Redland, Bristol, 6; Alexander Thomson and Co. (London), Ltd., 45a Kensington High Street, London, W.8.

**War Department.**—Contracts placed for the week ended Aug. 26:

Dorset (Bovington Camp): roadwork—Asphalt Specialists, Ltd., Bristol, 2. Hampshire (Cove): heating—Brightside Heating and Engineering Co., Ltd., Portsmouth; (Arborfield): painting and decorating—P. J. Hartel (Southern), Ltd., Southampton.

London (Woolwich, S.E.18): building—C.A.S. (Contractors), Ltd., London, W.8. Midlothian (Edinburgh): fencing—James Strang and Son, Falkirk.

Pembrokeshire (Manorbier Camp): painting and decorating—J. H. Woodward (Contractors), Ltd., Leamington Spa. Shropshire (Donnington): doors—Eclair Doors, Ltd., Birmingham.

Surrey (Camberley): painting and decorating—P. J. Hartel (Southern), Ltd., Southampton.

Wiltshire (Chisledon and Ogbourne St. George): miscellaneous—Gaiger Bros., Ltd., Devizes; (Bulford): electrical—F. G. and R. Huband, Evesham.

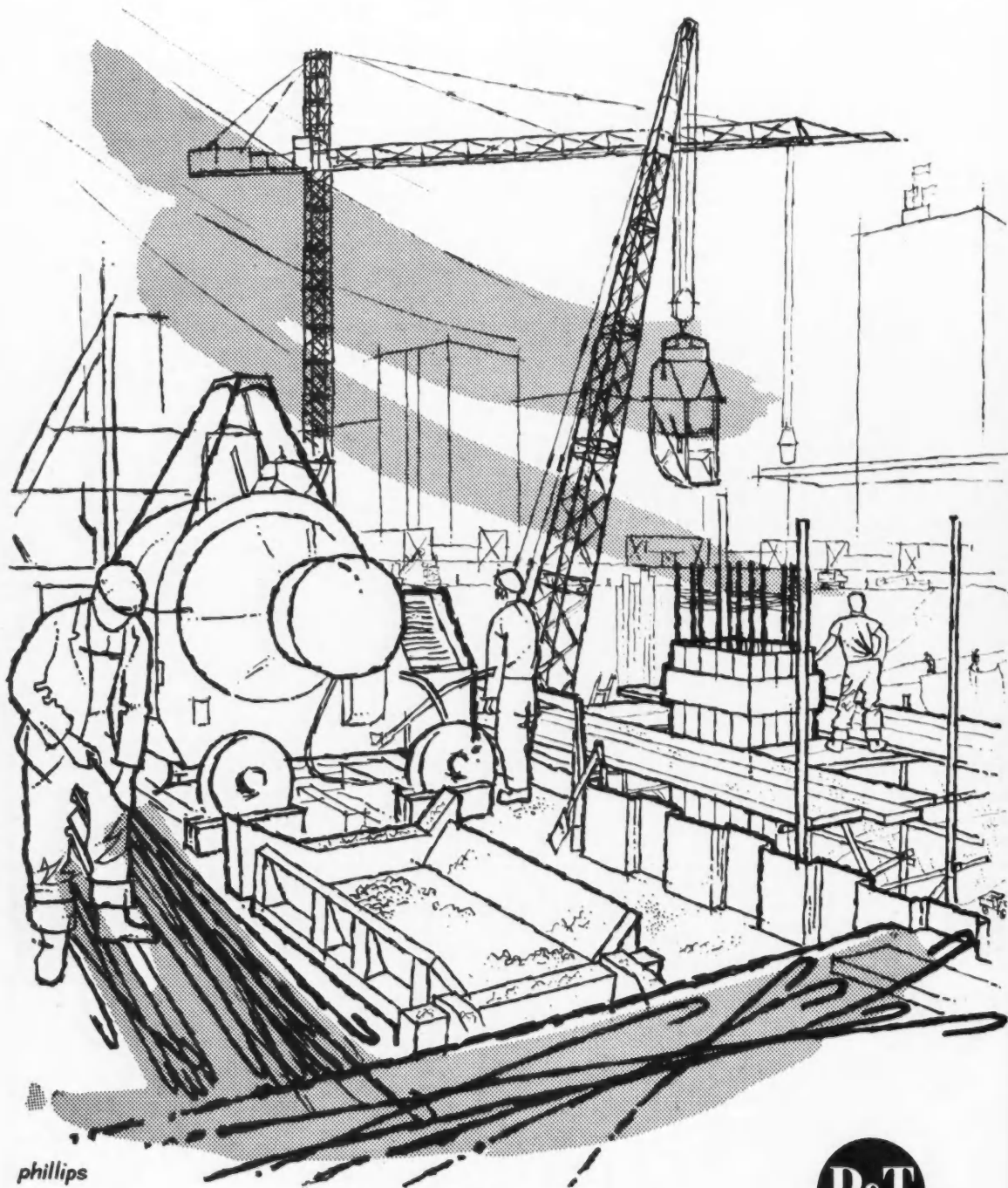


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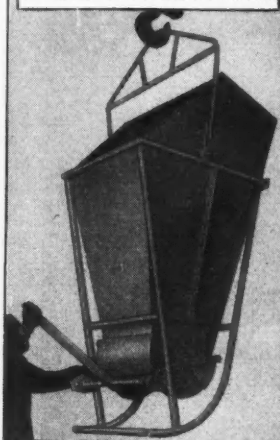
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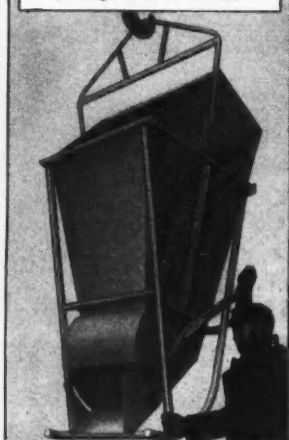
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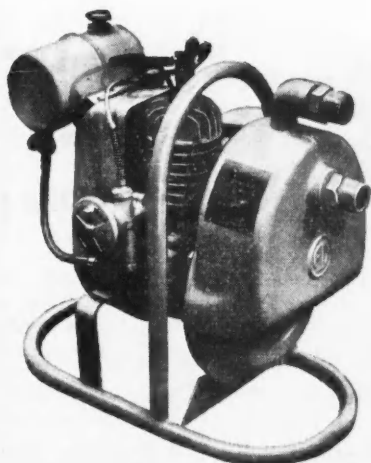
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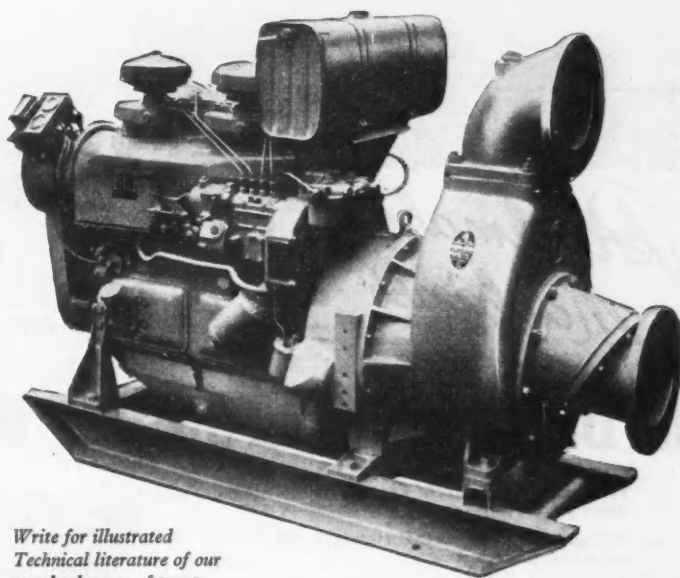
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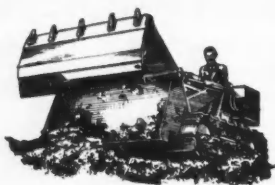
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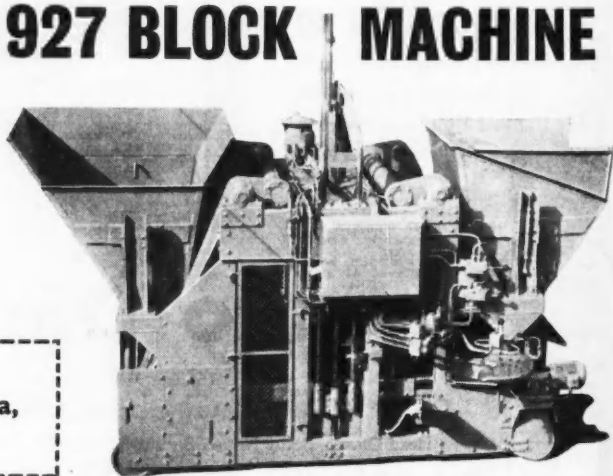
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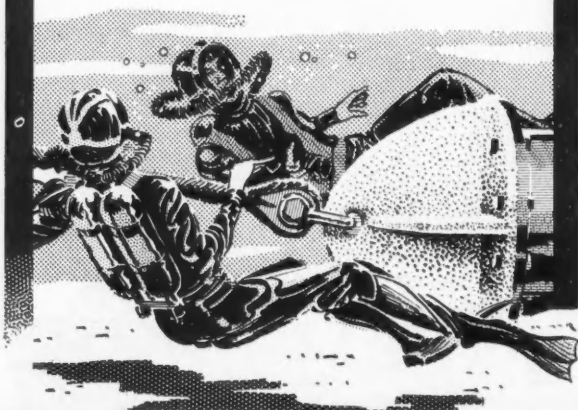


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It undertakes to establish, in the public interest, high standards of serviceability of equipment and a Safety Code for its operation; to promote high standards in the practice of heavy lifting and to provide a representative body for consultation by and with Government Departments and other organisations.

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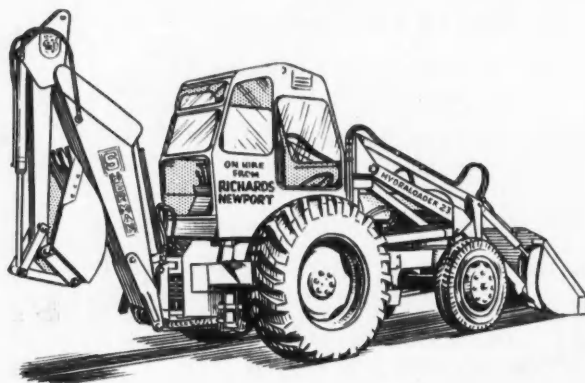


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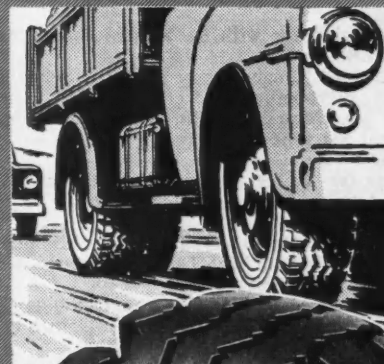
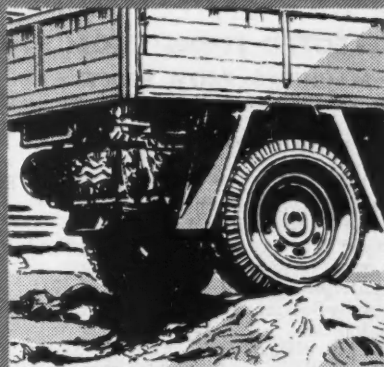
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(Continued from page 1125)

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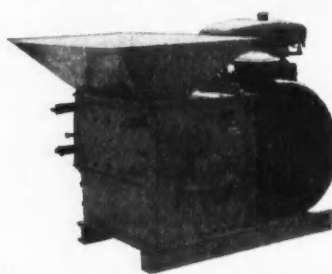
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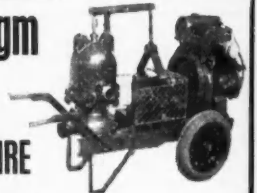
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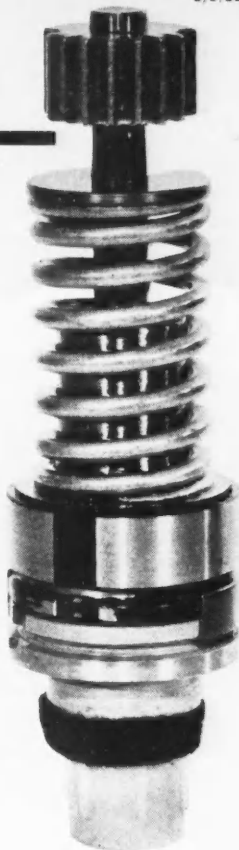
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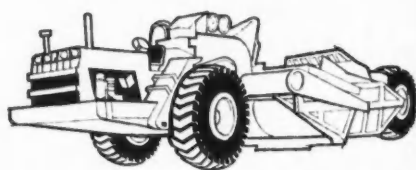
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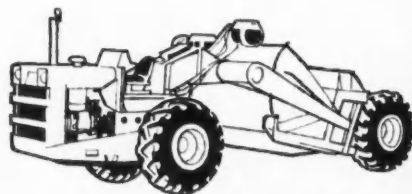
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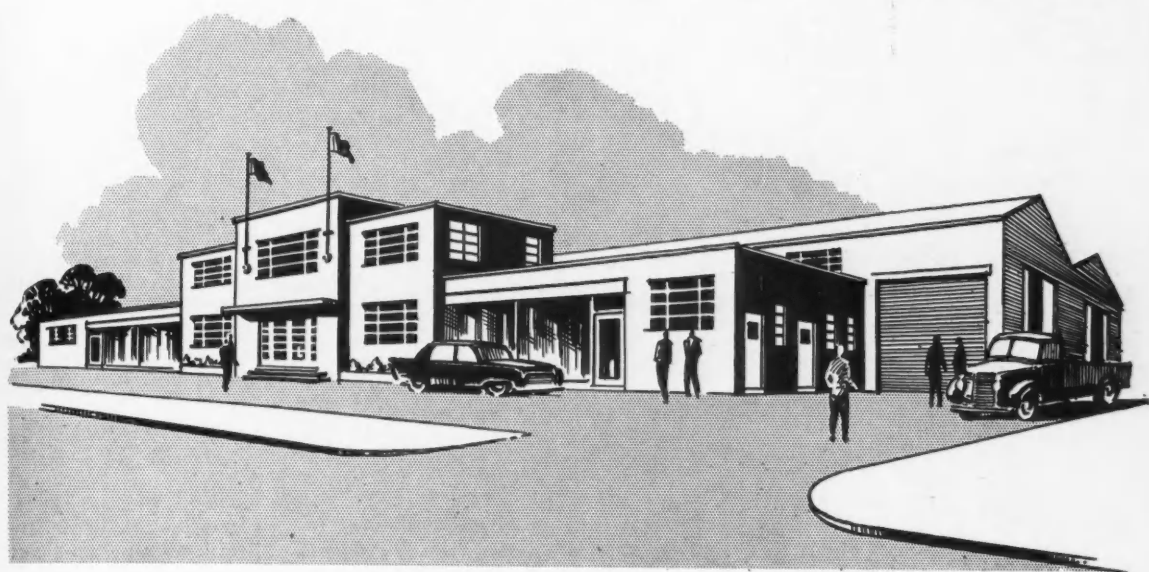
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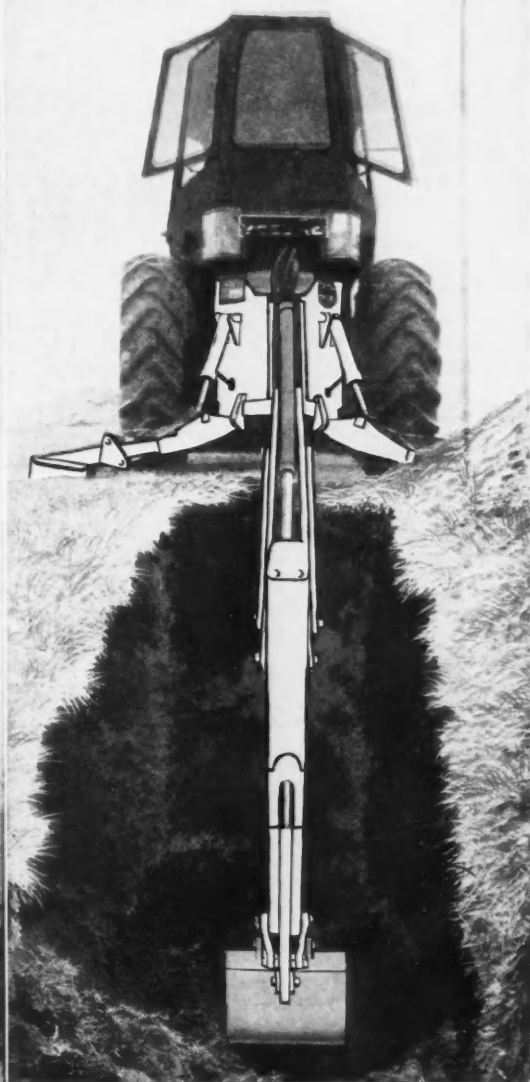
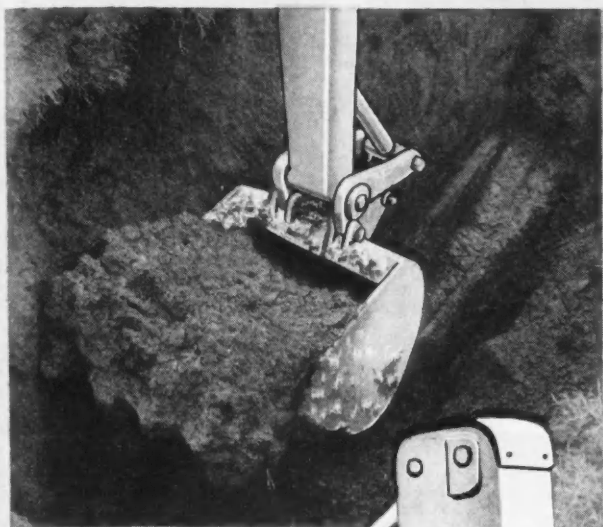


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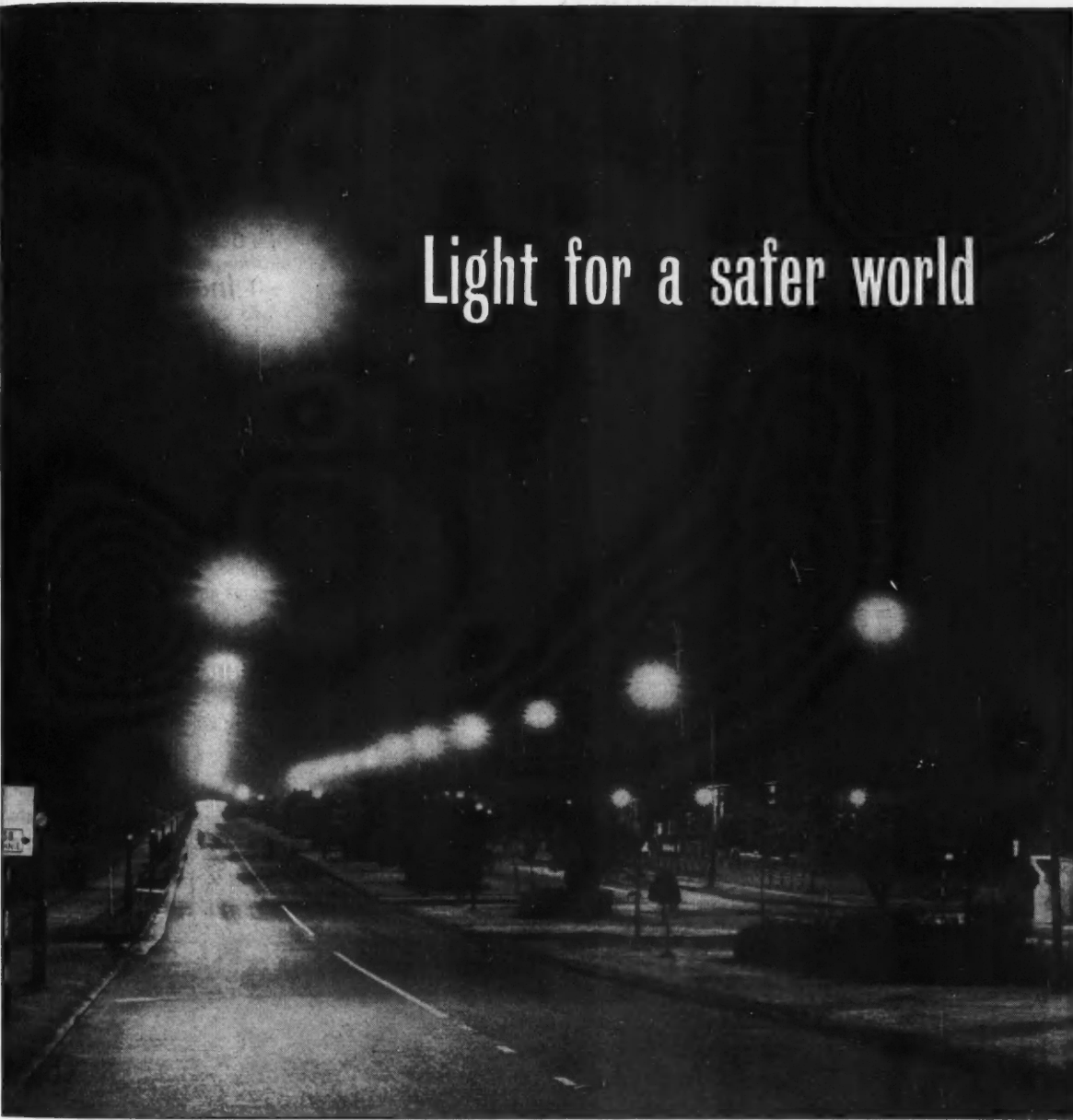
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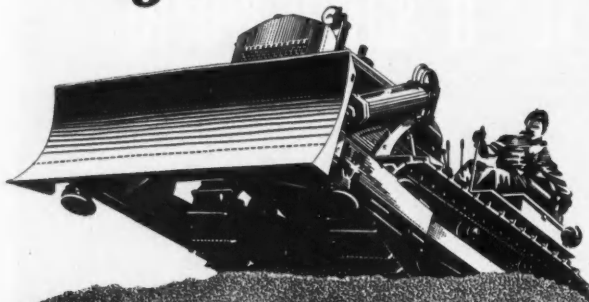
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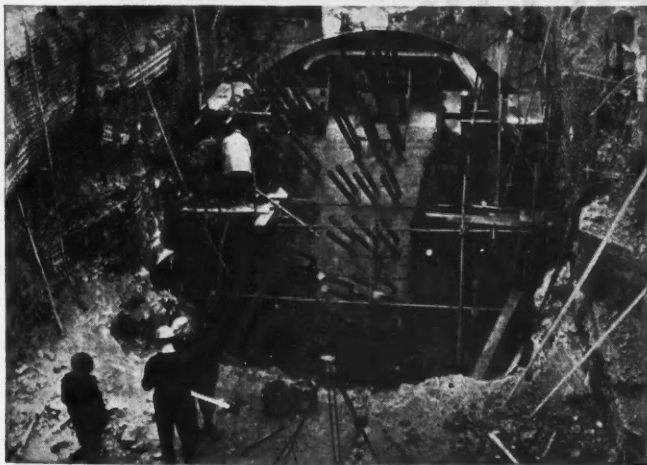
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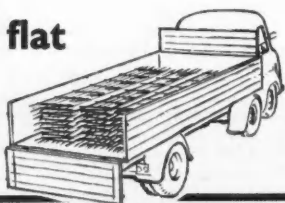
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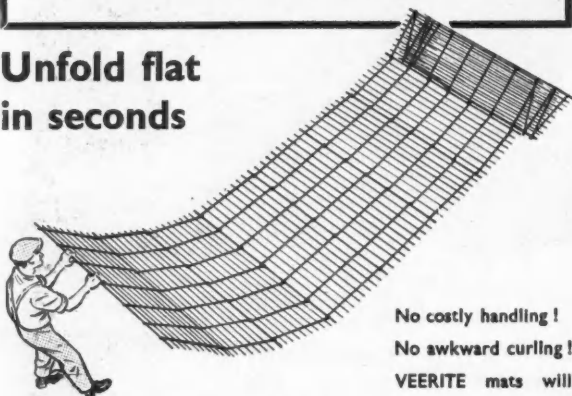
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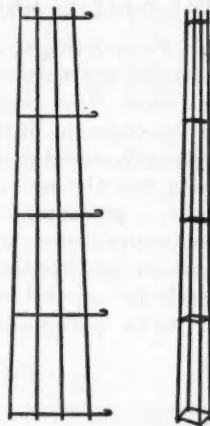
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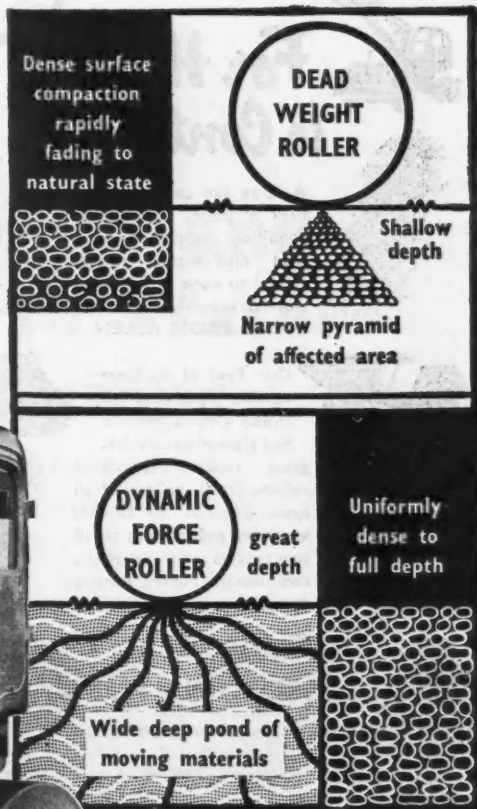
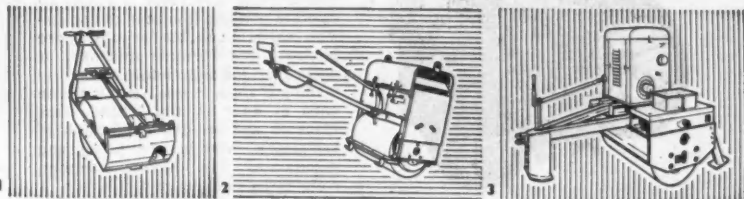
# Judge for yourself- **VIBROLL** BRITISH REGD. TRADE MARK is *tons* better



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1. Hand Propelled Roller 24H. 4 cwt. Roll 21" diameter by 24" wide.
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3. Trailer Roller 54T. 30 cwt. Roll 30" diameter by 54" wide.



Tons better because you get *deeper*, more uniform compaction of sand, gravel, ballast, asphalt, tarmacadam and dry mix concrete with a machine only a fraction of the weight of a dead-weight roller.

The diagrams above emphasise the basic advantage of the Vibroll dynamic force roller over the conventional dead-weight roller. Compaction carried out with a dead-weight roller decreases rapidly with depth; the vibrating roll of the Vibroll, however, creates a wide, deep volume of moving materials which ensures uniform compaction to great depth.



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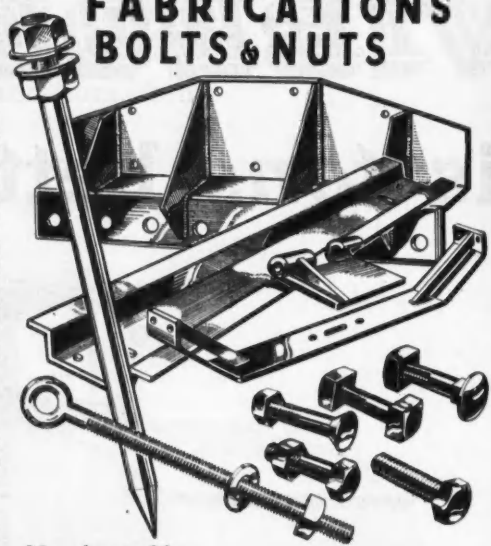
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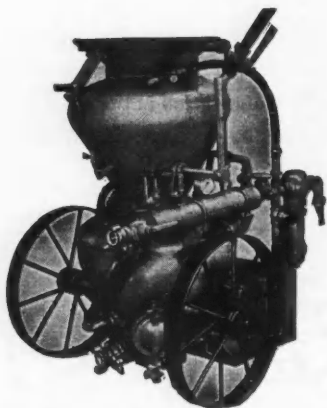


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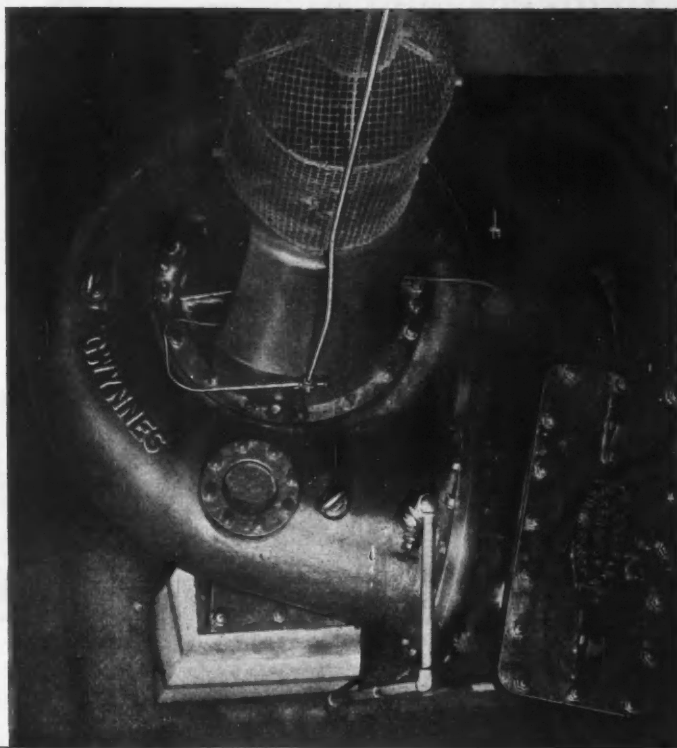
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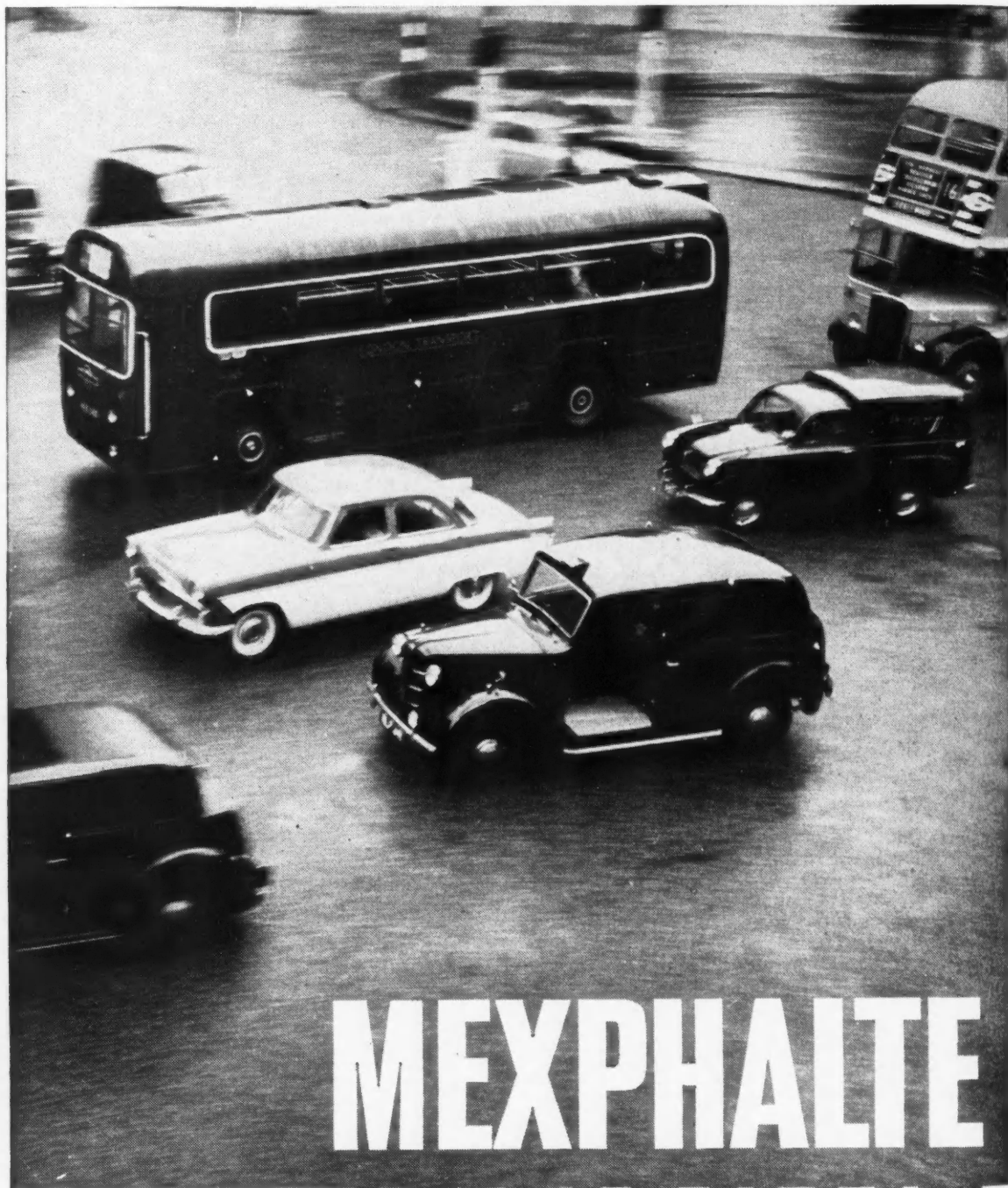
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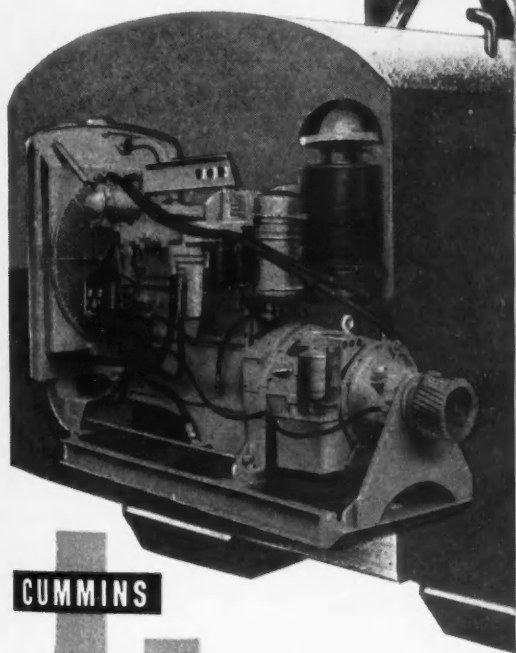
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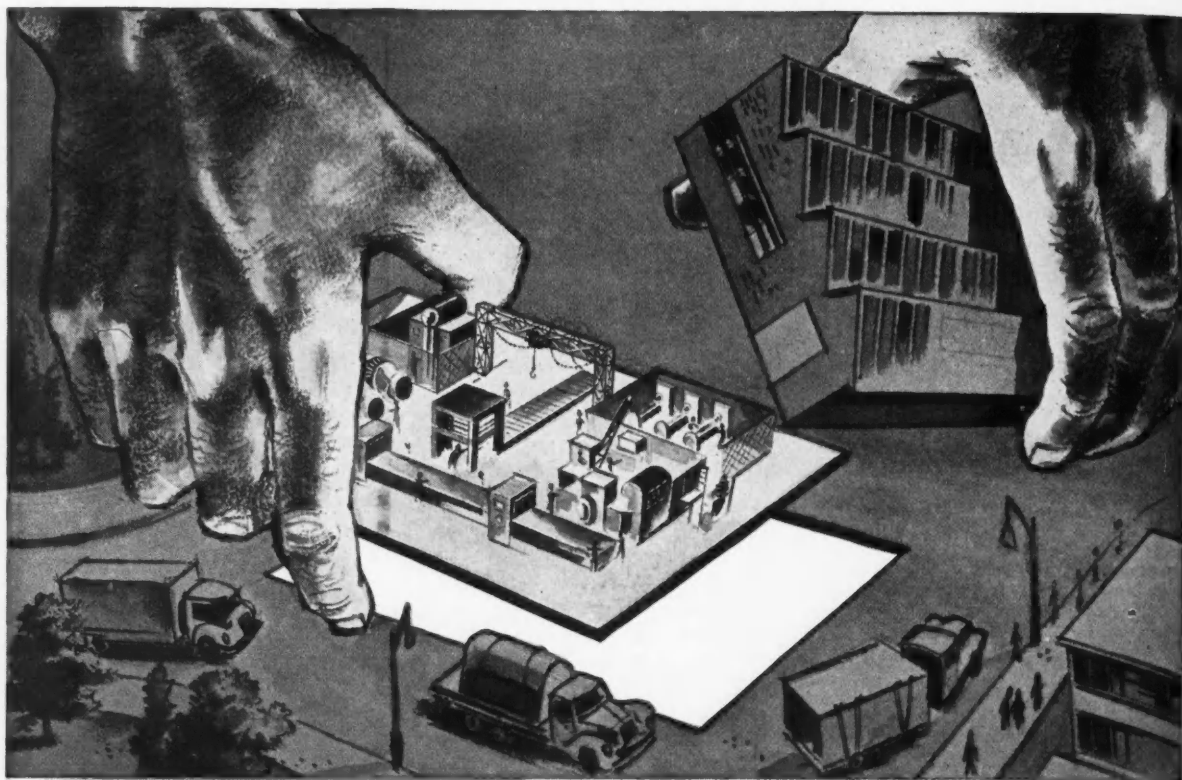
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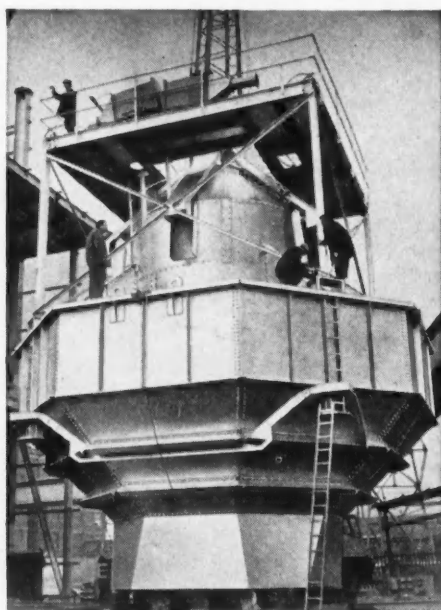
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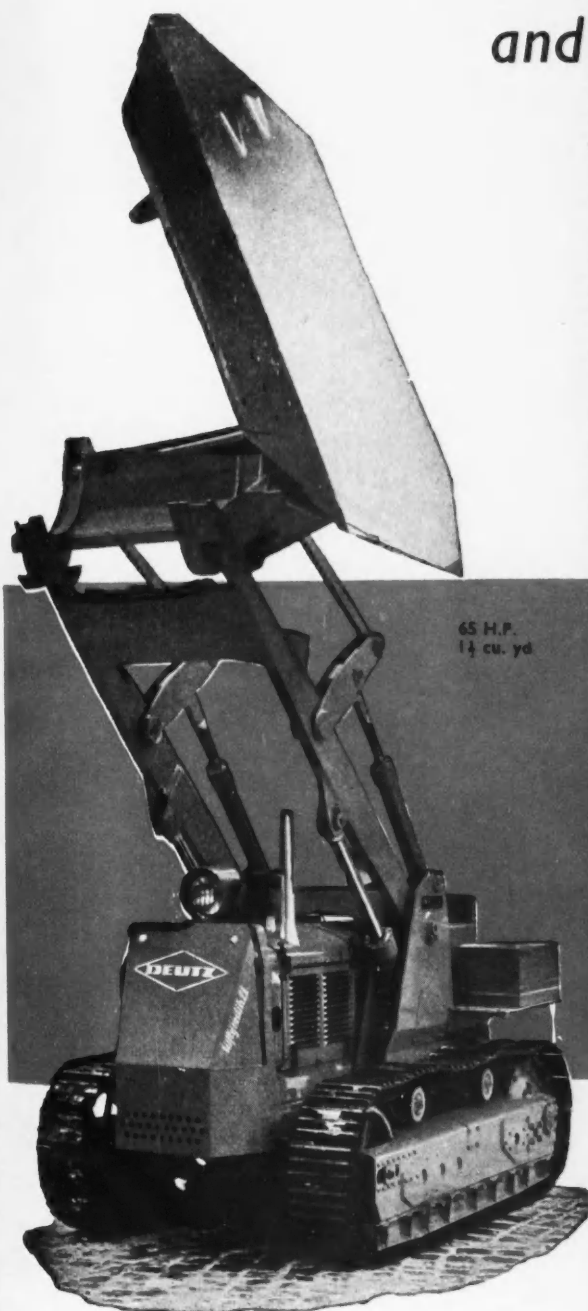
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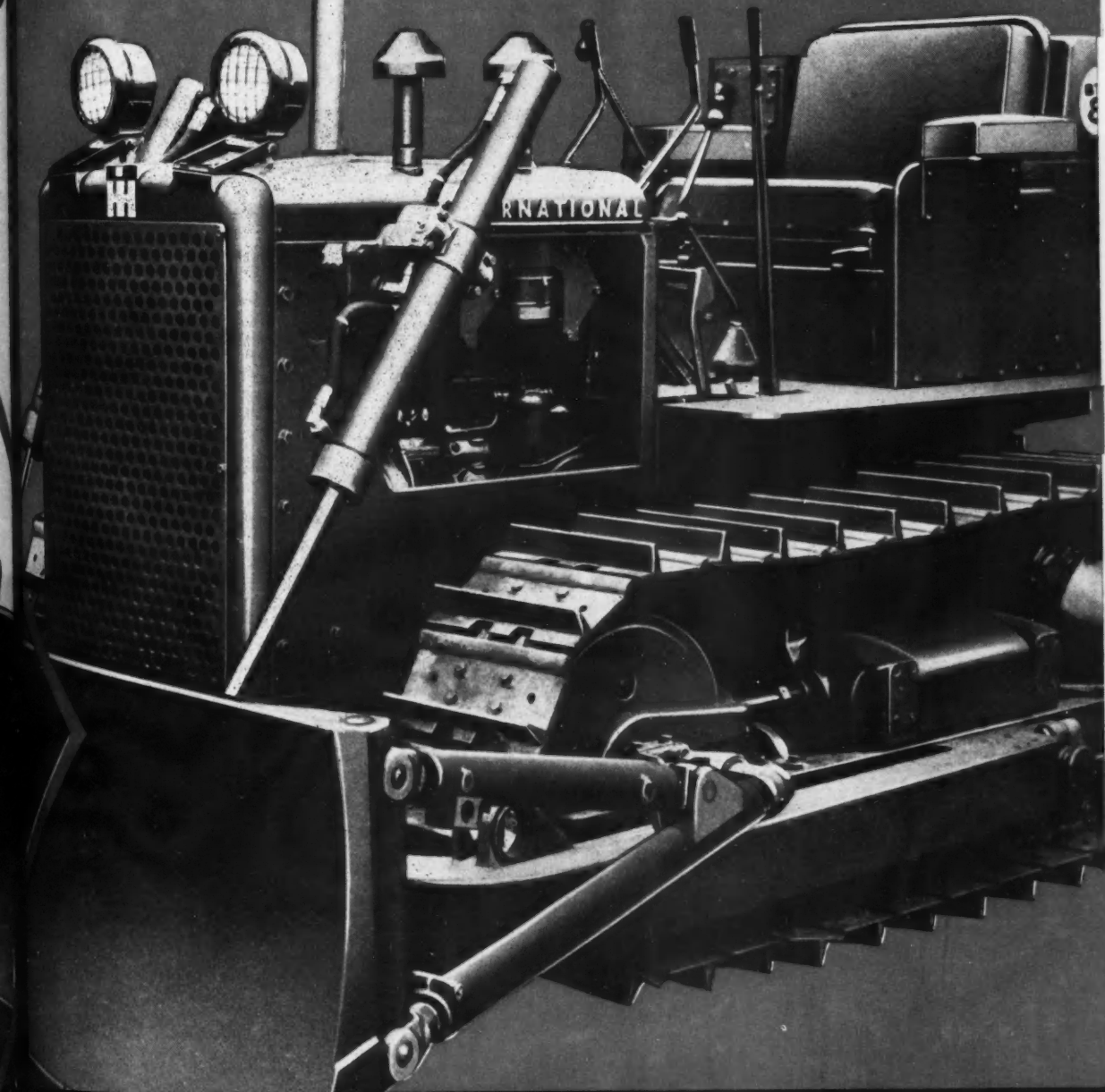
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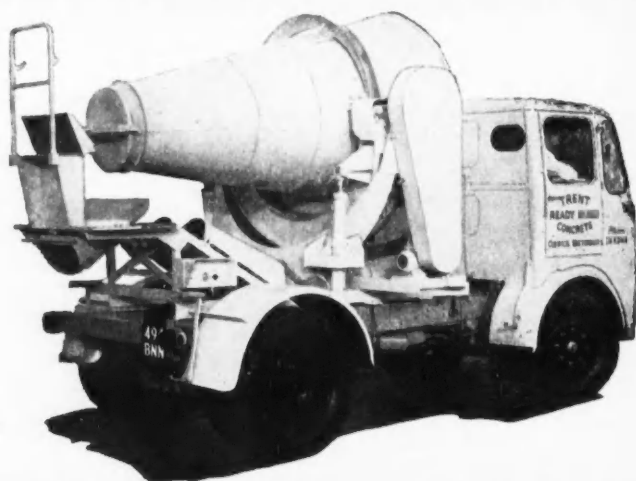
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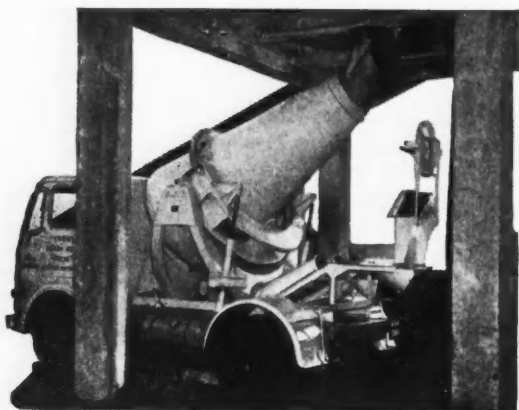
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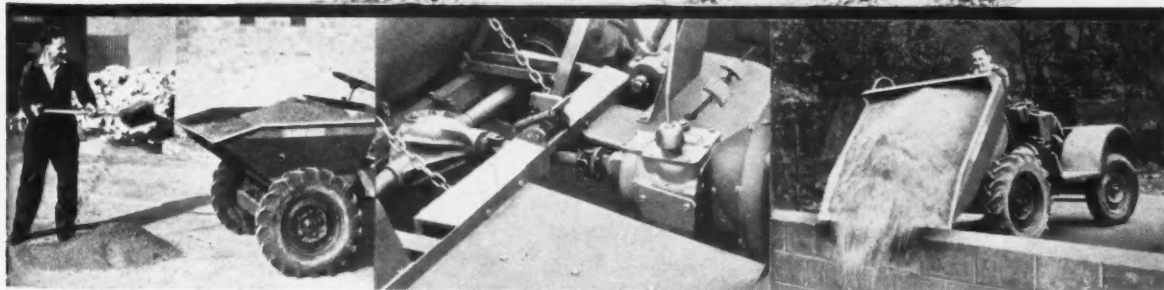
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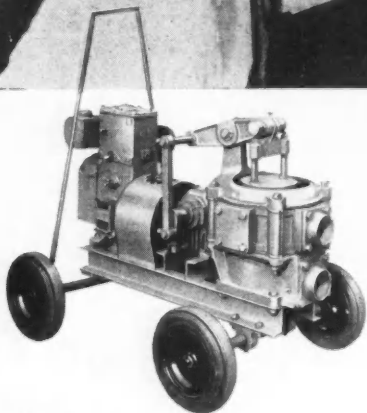
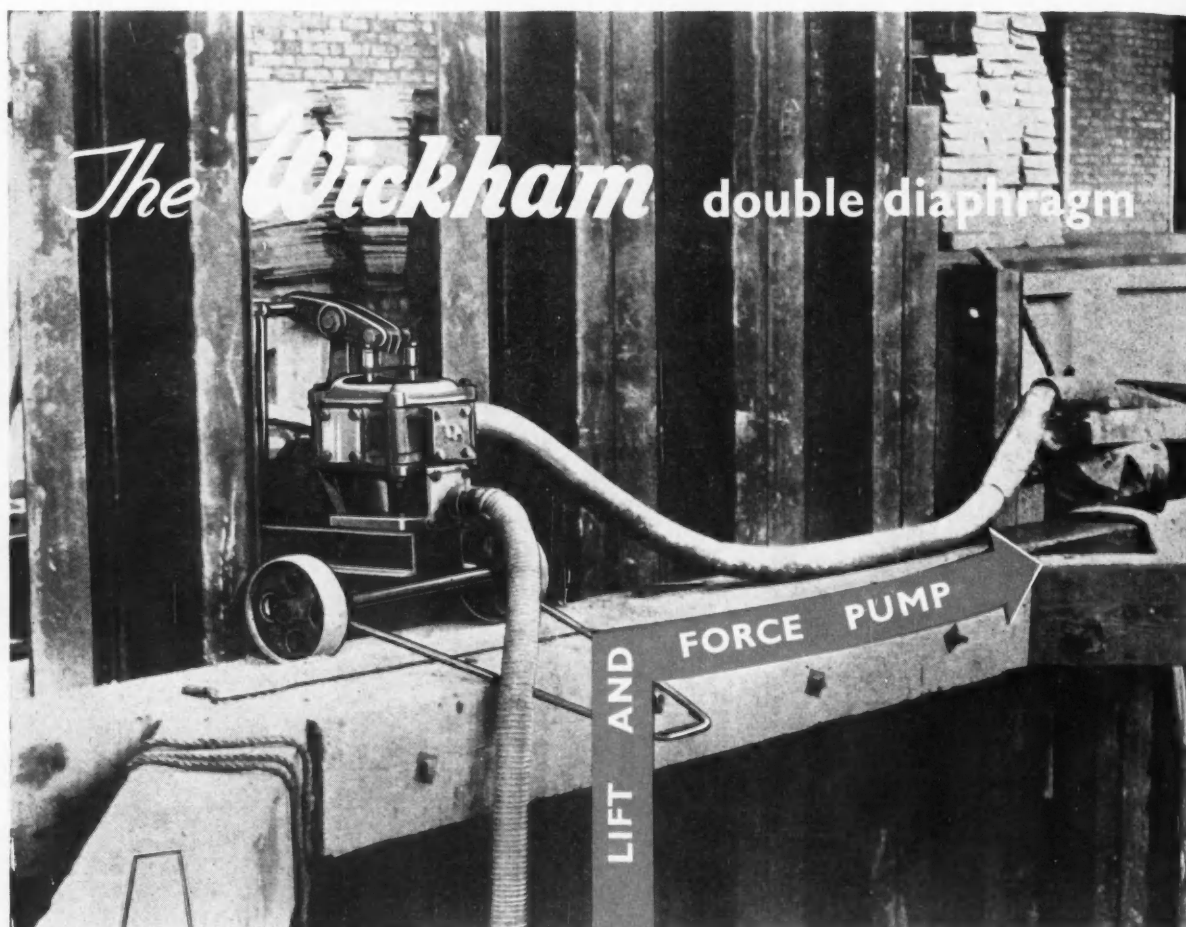
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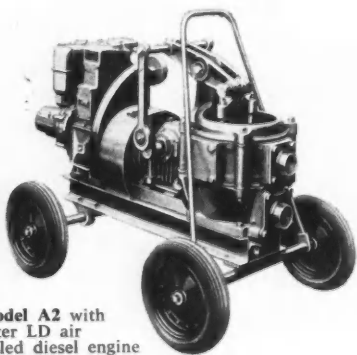
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## BRECKNOCKSHIRE

**NASH ROCKS STONE AND LIME CO., LTD.**, Presteligne, Radnor. (Tel.: Presteligne 352.) (See Herefordshire for details.)  
**SALOP SAND AND GRAVEL SUPPLY CO.**, Admaston, Wellington. (Tel.: 961.) Salop.

## BUCKINGHAMSHIRE

**AMEY'S AGGREGATES, LTD.**, Lower Wootton, Boars Hill, Oxford. (Tel.: Oxford 35421—10 lines.) Pits at Dry Sandford, near Abingdon, Sutton Courtenay, near Abingdon. (Tel.: Sutton Courtenay 275.) Theale, near Reading. (Tel.: Theale 358.) Dorchester, Oxon. (Tel.: Clifton Hampden 236.) Billing, Northampton. (Tel.: Cogenhoe 464) for washed and graded aggregates to B.S.S.  
**ALPHATE CARPETS, LTD.**, 38 Buckingham Palace Road, London, S.W.1. (Tel.: Tate Gallery 4857 or Gerrards Cross 3496.) Manufacturers of all grades of gravel bitumen macadam, gravel asphalt and cold asphalt at Gerrards Cross.  
**BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD.**, near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)  
**BICSTER STONE CO., LTD.**, Stratton Audley, Bicester, Oxon. (Tel.: Stratton Audley 238.) Manufacturers and suppliers of all grades limestone, tarmac, dry, pitching stone, hardcore, etc.  
**COFF, HARRY A., LTD.**, Buckhurst Hill, Chesham, Ascot, Berks. (Tel.: 1026/7.) (See Berkshire.)  
**DANGERFIELD, F. J., & CO., LTD.**, 261A Finchley Rd., London, N.W.3. (Tel.: HAMSTEAD 8044/8.) For all road aggregates, kerbs, setts. (See London.)  
**DRINKWATER, W. W. (WILLESDEN), LTD.**, Rush Green, Denham, Bucks. (Tel.: Denham 2241/2/3.)  
**GRINDON, S. (EWELEME), LTD.**, Eweleme, Oxon. (Tel.: Eweleme 20.) London Office (Tel.: Uxbridge 4156). All grades washed aggregates. Path hoggins, broken stone, building sand.  
**HAINES, H. (WITNEY), LTD.**, Oxford Road, Witney. (Tel.: Witney 42.) All grades washed aggregates, hardcore, pitching and broken stone, Cotswold building and walling stone.  
**HALL AND CO., LTD.**, Brentford, Middlesex. (Tel.: Isleworth 4455), and Coronation Road, High Wycombe (Tel.: 4360/1) and at Gerrards Cross. Pits at Wraybury (Middlesex) and Ivor (Bucks.).  
**JAMES AND CO., LTD.**, 2C Buckingham Avenue, Slough. Sand aggregates, hardcore, ashes, bulldozing and bulk excavation. (Tel.: Slough 20361/2/3.)  
**LONDON BALAST CO., LTD.**, (Tel.: Paddington 5064.) 35A Portchester Terrace North, Paddington, W.2.  
**MARLOW SAND AND GRAVEL CO., LTD.**, Westhorpe Pit, Little Marlow, Bucks. (Tel.: Marlow 379.)  
**SWART MACEY, LTD.**, Gordon Road, High Wycombe. (Tel.: High Wycombe 2591/2.)  
**WELFORD GRAVELS, LTD.**, Head Office: Goldington, Bedford. (Tel.: 4587/8/9.) (See Bedfordshire.)

## CAMBRIDGESHIRE

**BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD.**, near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

## CAMBRIDGESHIRE

**DANGERFIELD, F. J., & CO., LTD.**, 261A Finchley Rd., London, N.W.3. (Tel.: HAMSTEAD 8044/8.) For all road aggregates, kerbs, setts. (See London.)  
**DICKERSON, M. (CONTRACTORS), LTD.**, Gloucester Street, Cambridge. (Tel.: Cambridge 56973/4.) All grades washed sand and gravel, reject stone, hoggins, clinker, crushed granite, crushed and graded concrete hardcore, brick rubble, ready-mixed concrete (all grades).  
**MACLAREN BROS. (KENNETT), LTD.**, gravel, tarred and bituminous, gravel asphalt, washed sand and gravel, all to B.S. Specifications. Delivered to any site, Station Rd., Kennett, Cambs. (Tel.: Kentford 333/4.)  
**ST. IVES SAND AND GRAVEL CO., LTD.**, 22 The Broadway, St. Ives, Hunts. (Tel.: St. Ives 2441/2/3/4.) (See Huntingdonshire for details.)  
**WEBB, G., CAMBRIDGE, 35 Magrath Ave., Cambridge.** Tel. 59966, 53969, 50353 (night). Supplier, at keenest rates, of "Finest Quality Only" hoggins, clinker, crushed granite, crushed and graded concrete, ashes, brick rubble, pitching, hardcore and granite chippings. All to B.S. Specifications. Delivered to any site in East Anglia.  
**WELFORD GRAVELS, LTD.**, Head Office: Goldington, Bedford. (Tel.: 4587/8/9.) (See Bedfordshire.)

## CARDIGANSHIRE

**NASH ROCKS STONE AND LIME CO., LTD.**, Presteligne, Radnor. (Tel.: Presteligne 352.) (See Herefordshire for details.)  
**SALOP SAND AND GRAVEL SUPPLY CO.**, Admaston, Wellington. (Tel.: 961.) Salop.

## CHESHIRE

**BUCKTON QUARRY, broken stone, all grades.** (Tel.: Mossley 123.) Or write Main Road, Oldham.  
**CASTLETON SAND AND GRAVEL QUARRIES, LTD.**, Pennant End Quarry, Whaley Bridge. (Tel.: Whaley Bridge 139.) Washed sand and gravel.  
**CAWOOD, WHARTON AND CO., LTD.**, Pitvill Gwyn Quarry, Llanarmon, near Mold. (Tel.: Llanarmon-vn-lal 27.) Crushed limestone and tarred macadam, all grades.  
**CHESHIRE AND NORTH WALES TARRIED MACADAM CO., LTD.**, Llanarmon, near Mold. (Tel.: Llanarmon-vn-lal 43.) Hard, broken limestone, dry and coated to B.S. Inquiries to registered office—Market Chambers, Tower Square, Tunstall, Stoke-on-Trent. (Tel.: Stoke-on-Trent 8809.)  
**CRODEN GRAVEL, LTD.**, Cheddle, Stoke-on-Trent. (Tel.: Team 393.) Manchester Office: Blackfriars 3766/7. Plant capacity, 2,000 tons per day.  
**DUNNING AND SON, LTD.** (See Shropshire.)  
**HILTON GRAVEL, LTD.**, Rice Street, Liverpool Road, Manchester, 3. (Tel.: Deansgate 5455 and 5456.) Quarries at Cheddle, Staffs. (Tel.: Team 241.) And at Longton, Stoke-on-Trent. (Tel.: Longton 32196.)  
**HULLAND GRAVEL CO., LTD.**, Cheddle, Stoke-on-Trent. (Tel.: Cheddle 2323/4, 2119 and 2195.) Manchester Office: 464 Wilbraham Road, Chorlton, Manchester, 21. (Tel.: Chorlton 2274/5.)  
**PENMAENMAWR AND WELSH GRANITE CO., LTD.**, 7 Picton Road, Liverpool, 15. (Tel.: Sefton Park 7261.) All sizes of granitic crushed granite aggregate from our Collingwood Dock (Liverpool) Depot. Any quantity per day: immediate delivery at stock.  
**PRESTWICH, WILLIAM, AND SONS, LTD.**, Dronfield, Derbyshire. (Tel.: 2204—6 lines.) Dry and coated Derbyshire limestone and slag for all purposes and to all specifications. "Haddon" foamed slag blocks.  
**TERN HILL SAND AND GRAVEL CO., LTD.**, Almlington Quarries, near Market Drayton, Staffs. (Tel.: Haies 261/2/3.) (See Staffordshire for details.)  
**TRENTHAM GRAVELS CO., LTD.**, Lonsdale Quarries, Willoughbridge, near Market Drayton, Salop. (Tel.: Pipe Gate 304/5.) All sizes crushed or natural washed gravel, twice washed sharp concreting sand, plastering sand. Plant capacity: 2,000 tons per day.  
**WILLIAMS, C. F., LTD.**, Bishop Street San't Quarry, Turroft, Lancs. (Tel.: Stockport 7096.) Building sand and concrete sand. Bulk sand and gravel filling a speciality.

## CORNWALL

**PENTEWAN DOCK AND CONCRETE CO., LTD.**, Pentewan Works, near St. Austell. (Tel.: Mevagissey 3335/6.) Twithead Works, near Hayle. Pure silica gravel and grit, concreting, building, plastering and asphaltting sands, elvan and granite aggregates, all sizes.

## CUMBERLAND

**BROOMBYS, LTD.**, Sandside, Minthorpe (Tel. 3251/2), Westmorland. (See Westmorland.)  
**ESK MANUFACTURING CO., LTD.**, Dalston Road, Carlisle, Cumberland. (Tel.: Carlisle 2-4941.) All grades washed, crushed gravel and concreting sand to B.S. Specification. Precast concrete products and partition blocks. Sand lime coloured facing and common bricks. Ex works or delivered.

## DENBIGHSHIRE

**SALOP SAND AND GRAVEL SUPPLY CO.**, Admaston, Wellington. (Tel.: 961.) Salop.

## DERBYSHIRE

**BALLIDON QUARRIES, LTD.**, Ballidon, near Ashbourne, Derbyshire. (Tel.: Arwath 201 and 202.) Clean and graded dry limestone to B.S. All sizes, coated limestone to B.S. 802 and 1621 and wet-mix; large output; reliable deliveries.  
**BURROWS BROTHERS (EXCAVATIONS), LTD.**, Wolsley House, 108 Saltergate, Chesterfield. (Tel.: Chesterfield 7130.) Red shale, black ashes, graded clinker, filter media, stone slag, sand, gravel and hoggins filling, bulk quantity supplies.  
**GRAVEL HILL SAND QUARRIES, LTD.**, Tel.: Ashby (Leics.) 79. (See Leicestershire for details.)  
**HILTON GRAVEL, LTD.**, Hilton, Derby. (Tel.: Etwell 422.) Also at Mercaston. (Tel.: Brailsford 316.) And at Willington. (Tel.: Repton 215.)  
**HOVERINGHAM GRAVEL CO.**, Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) (For details, see Nottinghamshire.)

## DERBYSHIRE

**HULLAND GRAVEL CO., LTD.**, Cheddle, Stoke-on-Trent. (Tel.: Cheddle 2323/4, 2119 and 2195.) Manchester Office: 464 Wilbraham Road, Chorlton, Manchester, 21. (Tel.: Chorlton 2274/5.)  
**PRESTWICH, WILLIAM, AND SONS, LTD.**, Dronfield, Derbyshire. (Tel.: 2204—6 lines.) Dry and coated Derbyshire limestone and slag for all purposes and to all specifications. "Haddon" foamed slag blocks.  
**SALISBURY AND WOOD, LTD.**, Matlock (Tel.: 272/273). Limestone and granite, dry or coated gravel and sand; kerbs, slabs, blocks, posts, reconstructed and natural stone; lime and ground limestone. Lightweight aggregates, ashes, red shale.

## DORSET

**BULL BROS., S. AND L., LTD.**, 126A High Street, Winchester. (Tel.: 2264.) (See Hampshire.)  
**DANGERFIELD, F. J. AND CO., LTD.**, 261A Finchley Road, London, N.W.3. (Tel.: HAMSTEAD 8044/8.) For all road aggregates, kerbs, setts. (See London.)  
**DORSET LESTONESTONES, LTD.**, Bumpers Lane, Easton, Portland, Dorset. (Tel.: Portland 2207/8.) Tarrad and bituminous macadam, foundation materials, limestone for all purposes and to all gradings. Portland stone aggregates and Portland capstone aggregates for reconstructed stone. By road and sea.  
**GILSON, S. C., AND SONS, LTD.**, Holcombe, near Bath. (Tel.: Stratton-on-the-Fosse 243.)  
**HALL AND CO., LTD.**, 8 Commercial Road, Parkstone (Tel.: 5379.)  
**MORRIS (VERWOOD), LTD.**, Verwood, Wimborne Dorset. (Tel.: Verwood 234.) Concrete aggregates, building sand, hoggins, path gravel.

## DURHAM

**BRAITHWAITE, A., AND CO., LTD.**, Knarborough, Yorks. Quarry at Catterick. (Tel.: Old Catt. 157.) (For details see Yorkshire.)

## ESSEX

**BAKER, F. AND E., LTD.**, 73 High Road, Rayleigh, Essex. (Tel.: Rayleigh 1031/2.) Pits at Great Totham, Heybridge and West Tilbury. All grades of washed material supplied and delivered; also haccor, concrete, ashes and bricks.  
**BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD.**, near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)  
**BENT-MARSHALL (LEYTON), LTD.**, 665-667 High Road, Leyton, E.10. (Tel.: Leytonstone 407/8.) Sand, ballast brick and concrete hardcore delivered all areas.  
**DANGERFIELD, F. J., & CO., LTD.**, 261A Finchley Rd., London, N.W.3. (Tel.: HAMSTEAD 8044/8.) For all road aggregates, kerbs, setts. (See London.)  
**FERRIS PITS, LTD.**, The Limes Garage, Fencible Road, Barking, Essex. (Tel.: Hainault 5271/2-3001/2.) Pits at Orsett, near Stanford-le-Hope, and Upminster. All grades of washed aggregates, and building and plastering sands supplied and delivered, also hardcore and ashes.  
**HALL AND CO., LTD.**, Manor Road, Romford. (Tel.: Romford 42321.) Pits at Aveley, Boreham and Ilford, near Grays. Gravel aggregates, concreting, plastering and building sand.  
**HUNNABLE, F. A., AND SON, LTD.**, Rayne Road, Braintree, Essex. (Tel.: Braintree 151 and 1351.) Graded washed stone, "ain" to reject; washed concreting sand and washed soft building sand. Classified sand for asphalt. Ready mixed concrete in all grades. Pits at Braintree, Bocking, Beasley, Waltham, North Oxendon, Roxwell, West Thurrock.  
**LEIGH BUILDING SUPPLY CO., LTD.**, Head Office: 956 London Road, Leigh-on-Sea, Essex. (Tel.: 78264—5 lines.) All grades washed materials, building sand, hardcore, ashes, clinker, granite, plastering and building sand.  
**PETERS AND BARMAN, LTD.**, 309 South Street, Romford. (Tel.: Romford 44141—7 lines.) Washed and crushed gravel, all sizes; sand, Pits at Asheldham, Chigwell, St. James, Dagenham, Great Waltham, North Oxendon, Roxwell, West Thurrock.  
**READ, P. T., LTD.**, Fairlop Airfield, Forest Road, Ilford. (Tel.: Hainault 6111/2/3.) High-grade sands, ballast and shingles supplied and delivered, also ready-mixed concrete.  
**ST. IVES SAND AND GRAVEL CO., LTD.**, 22 The Broadway, St. Ives, Hunts. (Tel.: St. Ives 2441/2/3/4.) (See Huntingdonshire for details.)  
**STANWAY CONTRACTS, LTD.**, Upper Edwards Hall, Eastwood, Southend-on-Sea. (Tel.: Eastwood 55161.) Sand and gravel pits at Rochford and Woodham Walter. Graded aggregates supplied or delivered.  
**WELFORD GRAVELS, LTD.**, Head Office: Goldington, Bedford. (Tel.: 4587/8/9.) Washed and graded aggregates. Local Office and pits: Tillingham 287.  
**WIVENHOE SAND, STONE AND GRAVEL CO., LTD.**, Wivenhoe, near Colchester, Essex. (Tel.: Wivenhoe 231.) High-quality washed aggregates or all grades.

## GLOUCESTERSHIRE

**AMEY'S AGGREGATES, LTD.**, Lower Wootton, Boars Hill, Oxford. (Tel.: Oxford 35421—10 lines.) Pits at Dry Sandford, near Abingdon, Sutton Courtenay, near Abingdon. (Tel.: Sutton Courtenay 275.) Theale, near Reading. (Tel.: Theale 358.) Dorchester, Oxon. (Tel.: Clifton Hampden 236.) Billing, Northampton. (Tel.: Cogenhoe 464) for washed and graded aggregates to B.S.S.  
**BENGRI AND SONS, LTD.**, Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)  
**COKE, T. P. (CHELTENHAM), LTD.**, 267 Gloucester Road, Cheltenham. (Tel.: Cheltenham 4717/474.) Sand, gravel, gravel aggregates, hardcore, limestone, chippings, tarred and bituminous limestone, concrete blocks, fence posts, etc.  
**CROMMALL QUARRIES, LTD.**, Cromhall, Wotton-under-Edge, Glos. (Tel.: Fairfield 346/7.) Concrete aggregates, pre-graded in large quantities. Tarmac, tar-sanding, bituminous macadam and cold asphalt to B.S. for hand or machine laying.  
**FLOYD AGAR AND CO., LTD.**, Sherston, Malmesbury, Wilts. (Tel.: Sherston 237.) Cotswold building stone, hardcore, etc. (Details under Wiltshire.)  
**GRIFFITHS, A., AND SONS, Churchdown, Gloucester.** (Tel.: Churchdown 3135 and 2216.) Pit, quarry and dredger owners. All grades and types aggregate materials.

Rates for insertion in this GUIDE will be forwarded on application



# CONTRACTORS' GUIDE TO AGGREGATES

## GLOUCESTERSHIRE

**HALL AND CO., LTD.**, Longmoor House, Ashton Vale Road, Bristol, 3. (Tel.: 63001.) Gravel aggregates, concreting, plastering and building sand.  
**POOLE (LECHLADE), LTD.**, Gravel Pit, Burford Road, Lechlade, Glos. (Tel.: Lechlade 219.)  
**TAYMAC, LTD.**, Wootton Bassett, Swindon. (Tel.: Wootton Bassett 391—5 lines.) (See Wiltshire.)  
**WHITECLIFF QUARRIES AND BRICKWORKS, LTD.**, Coleford, Glos. (Tel.: Coleford 3158/9.) Tared and bituminous limestone macadam, asphalt, concrete aggregates, dolomitic media, engineering, facing and common bricks for all purposes. Delivery road or rail.

## HAMPSHIRE

**AMEY'S AGGREGATES, LTD.**, Lower Wootton, Boars Hill, Oxford. (Tel.: Oxford 35421—10 lines.) Pits at Dry Sandford, near Abingdon, Sutton Courtenay, near Abingdon. (Tel.: Sutton Courtenay 275.) Theale, near Reading. (Tel.: Theale 358.) Dorchester, Oxon. (Tel.: Clifton Hampden 236.) Billing, Northampton. (Tel.: Cogehoe 464) for washed and graded aggregates to B.S.S.  
**BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD.**, near Leicester. (Tel.: Coalville 1226 7/8; or London: VIGILANT 2530.) (For details, see Leics.)  
**BULL BROS. S. AND L., LTD.**, 126A High Street, Winchester. (Tel.: 2264.) Concrete aggregates (reconstituted, pit-mixed, weightbated to meet any specification); also ballast, hoggin, path gravel and sand from own pits at Fawley, Lockerley, Ringwood, Romsey, Swan and Totton.  
**DANGERFIELD, F. J. AND CO., LTD.**, 261A Finchley Road, London, N.W.3. (Tel.: HAMSTEAD 8044/8.) For all road aggregates, kerbs, setts. (See London.)  
**GILSON, S. C. AND SONS, LTD.**, Holcombe, near Bath. (Tel.: Stratton-on-the-Fosse 243.)  
**HALL AND CO., LTD.**, Baitic Wharf, Marine Parade, Southampton. (Tel.: Southampton 21234.) and at Portsmouth. Pits at Ringwood, Highbridge and Totton. Gravel aggregate, concreting, plastering and building sand.  
**HASKINS, G. AND SONS**, Queen Street, Emsworth. For washed sands and graded aggregates, path and road gravels, hoggin, clinker, ashes. (Tel.: Emsworth 2271.)  
**MOREYS (VERWOOD), LTD.**, Verwood, Wimborne, Dorset. (Tel.: Verwood 234.) Concrete aggregates, building sand, hoggin, path gravel.  
**NEW MILTON SAND AND BALLAST CO.**, Lymington Road, New Milton, Hants. (Tel.: 37 and 566.) Guaranteed clean washed, screened and graded concrete aggregates. All sizes. Washed sharp and fine sands.  
**PETERSFIELD ENGINEERING AND CONCRETE PRODUCTS**, Buriton, nr. Petersfield, Hants. (Tel.: Petersfield 1079.) Concrete aggregates, washed and graded, filter media.  
**PRIVETT, W. G. AND SONS, LTD.**, Drayton Lane, Portsmouth. (Tel.: Cosham 70059.) Concrete aggregates, building sand, hoggin, ashes, washed and graded, filter media, etc.  
**RALPH OF BASINGSTOKE, LTD.**, 37 Kemphott Lane, Basingstoke, Hants. (Tel.: 85.) Concrete aggregates, building sand, path gravel, hoggin, etc.  
**WESSEX SAND AND GRAVEL CO.**, 126 Hillside Avenue, Southampton. (Tel.: 56616.) Pits at Romsey and Fair Oak. Concrete aggregates, hoggin, building sand, etc.  
**WRAYSBURY SAND AND GRAVEL CO., LTD.**, Station Road, Theale, Reading, Berks. (Tel.: Theale 373.)

## HEREFORDSHIRE

**BENGRY AND SONS, LTD.**, Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) Suppliers of all grades of crushed concrete aggregates, road metalling, pitching stone, hardcore and coated macadam.  
**CLEE HILL TRAPROOF AND ROLLING CO., LTD.**, Ludlow, Salop. (Cleehillstone 284.) (See Shrops.)  
**NASH ROCKS STONE AND LIME CO., LTD.**, Presteigne, Radnor. (Tel.: Presteigne 352.) All grades of tared and bituminous macadam, roadstone, chippings and concrete aggregates, etc.  
**OLD RADNOR TRADING CO., LTD.**, Kingston. (Tel.: 11.) Gravel and limestone aggregates, coated macadam, concrete products.  
**SALOP SAND AND GRAVEL SUPPLY CO.**, Admaston, Wellington. (Tel.: 961.) Salop.  
**WHITECLIFF QUARRIES AND BRICKWORKS, LTD.**, Coleford, Glos. (Tel.: 3158/9.) (See Gloucestershire.)

## HERTFORDSHIRE

**JARDON HILL QUARRIES (ELLIS AND EVERARD), LTD.**, near Leicester. (Tel.: Coalville 1226 7/8; or London: VIGILANT 2530.) (For details, see Leics.)  
**DANGERFIELD, F. J. AND CO., LTD.**, 261A Finchley Road, London, N.W.3. (Tel.: HAMSTEAD 8044/8.) For all road aggregates, kerbs, setts. (See London.)  
**EASTWOODS SALES, LTD.**, Eastwood House, City Road, E.C.1. (Tel.: Clerkenwell 2040.) Broxbourne pit. (Tel.: Hoddesdon 2456.) Producers and distributors of all grades of washed aggregates.  
**GABRIEL, C. LTD.**, Palmers Lane, Enfield, Middx. (Tel.: HOWARD 4351/2/3.) Washed aggregates and building sand. Pits at Hertford and Enfield.  
**HALL AND CO., LTD.**, Railway Yard, Orchard Road, Stevenage. (Tel.: 775.) and at Hatfield. Gravel aggregates, concreting, plastering and building sand.  
**ST. IVES SAND AND GRAVEL CO., LTD.**, 22 The Broadway, St. Ives, Hunts. (Tel.: St. Ives 2441/2/3/4.) (See Huntingdonshire for details.)  
**WEBB, G., CAMBRIDGE**, 35 Magrath Ave., Cambridge. (Tel.: 59966, 53969, 50353 (night).) (See Cambs.)  
**WINFIELD, HENRY, LTD.**, Pix Farm Lane, Hemet, Hemetstead, Herts. (Tel.: Berkhamsted 1208/9.) Pits at: Hemet Hemetstead, Watford, West Hyde, Rickmansworth. Concrete aggregates, hoggin, building sand.

## HUNTINGDONSHIRE

**BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD.**, near Leicester. (Tel.: Coalville 1226 7/8; or London: VIGILANT 2530.) (For details, see Leics.)  
**FERRERS AND AGGREGATES, LTD.**, Northampton Road, Northampton. (Tel.: Northampton 2354/5.) (See Northants.)  
**GRAVEL PRODUCTS (HUNTS), LTD.**, St. Neots, Hunts. (Tel.: St. Neots 123.) Pits at Little Paxton, near St. Neots. (Tel.: St. Neots 308.) Deliveries in Beds, Herts. and South Cambs.  
**MENE BARGE AND LIGHTER CO., LTD.**, Market Chambers, Peterborough. (Tel.: 5534/5.) and Ship End Quarries, Wansford, near Peterborough. (Tel.: Wansford 384/5.) Roadstones, hardcore, broken stone, ballast, ashes, silica clay and sand.  
**ST. IVES SAND AND GRAVEL CO., LTD.**, 22 The Broadway, St. Ives, Hunts. (Tel.: St. Ives 2441/2/3/4.) Producers of all grades of washed sand and gravel. Ready mixed concrete. Precast concrete of every description.

## HUNTINGDONSHIRE

**WEBB, G., CAMBRIDGE**, 35 Magrath Ave., Cambridge. (Tel.: 59966, 53969, 50353 (night).) (See Cambs.)  
**WELFORD GRAVELS, LTD.**, Head Office: Goldington, Bedford. (Tel.: 4587/8/9.) (See Bedfordshire.)

## KENT

**BRASTED SAND PITS**, Brasted, Kent. (Tel.: 586.) London office: 10A, Dry Street, S.E.1. (Tel.: New Cross 3337.) Soft and plastering sands, lime and sand-mix dry, hardcore, S.H. bricks, ashes, etc.  
**BROWN BROS. (SITTINGBOURNE), LTD.**, Chalkwell Road, Sittingbourne, Kent. (Tel.: Sittingbourne 330.) Sand, ballast, shingle, hardcore, clinker, breeze blocks, etc.  
**CLUBB, J., LTD.**, Dartford, Kent. (Tel.: Dartford 25431.) Pits in North Kent, Medway area and Sevenoaks district. All washed and crushed gravel aggregates, concreting and building sand.  
**DIAMOND TREAD CO. (1938), LTD.**, Ditton Court Quarry, Larkfield, near Maidstone. (Tel.: West Malling 3444.) Quarry owners: tarmacadam, bituminous macadam and dry road stone manufacturers and suppliers. Head Office: 21-22 Old Bailey, London, E.C.4. (Tel.: City 7001—10 lines.)  
**DIAMOND TREAD CO. (CHART), LTD.**, Swan Lane Quarries, Little Chart, Ashford, Kent. Quarry owners: tarmacadam, bituminous macadam and dry roadstone suppliers. All inquiries to Area Office: Ditton Court Quarry, Larkfield, near Maidstone, Kent. (Tel.: W. Maling 3444.)  
**HALL AND CO., LTD.**, Canning Street, Maidstone. (Tel.: Maidstone 51051.) and at Folkestone and Hayes. Pits at Lunsford, near Larkfield. Gravel aggregates, concreting, plastering and building sand, S-recrete precision-mixed concrete.  
**HARRIS, M. P. AND CO., LTD.**, Station Road, Paddock Wood, Kent. (Tel.: 385.) (See Sussex.)  
**TILBURY CONTRACTING AND DREDGING CO., LTD.**, Pestley, Maidstone. (Tel.: Maidstone 55401/2/3.) Suppliers of tared, bituminous and dry Kentish ragstone, sea walling, asphalt filters, Scotch granite and kerbing.

## LANCASHIRE

**BROOMEYS, LTD.**, Sandisle, Milnthorpe. (Tel.: 3251/2.) Westmorland. (See Westmorland.)  
**BUCKTON QUARRY**, Broken stone, all grades. (Tel.: Mossley 123.) Or write: Main Road, Oldham.  
**CASTLETON SAND AND GRAVEL QUARRIES, LTD.**, Trows Lane, Castleton, nr. Rochdale. (Tel.: Castleton 57100.) Lee Quarries, Bacup. (Tel.: Bacup 213.) Suppliers of tared, bituminous and dry Kentish ragstone, sea walling, asphalt filters, Scotch granite and kerbing.  
**CROXEN GRAVEL, LTD.**, Cheadle, Stoke-on-Trent, Staffs. (Tel.: 393.) Manchester Office: Blackfriars 3766/7. Plant capacity, 2,000 tons per day.  
**DUNNING AND SON, LTD.** (See Shropshire.)  
**HARTLEY, JOHN W., LTD.**, Lundsfield Quarry, Carnforth, Lancs. (Tel.: Carnforth 100.) Large producers of highest quality washed sands, clean washed natural pebble and crushed gravel aggregates for all construction purposes.  
**HILTON GRAVEL, LTD.**, Rice Street, Liverpool Road, Manchester, 3. (Tel.: 2119 and 2195.) Quarries at Cheadle, Staffs. (Tel.: 241.) and at Longton, Stoke-on-Trent. (Tel.: Longton 32196.)  
**HULLAND GRAVEL CO., LTD.**, Cheadle, Stoke-on-Trent. (Tel.: 2119 and 2195.) Manchester Office: 464 Wilbraham Road, Chorlton, Manchester, 21. (Tel.: Chorlton 2274/5.)  
**PENMAENMAYR AND WELSH GRANITE CO., LTD.**, all sizes and gradings of crushed granite aggregate. Immediate delivery ex stock.  
**Liverpool and Preston Depots:**  
 Office: 7 Picton Road, Liverpool, 15. (Tel.: Salford Park 7261.)  
 Manchester Depot:  
 Office: Cornbrook Road, Manchester, 15. (Tel.: Trafford Park 3630.)  
**ROUND-QUARRIES, LTD.**, Helsby Street, Warrington. (Tel.: 35451—4 lines.) Building and concrete sand and shale.  
**TERN HILL SAND AND GRAVEL CO., LTD.**, Alington Quarries, near Market Drayton, Staffs. (Tel.: Hales 261/2/3.) (See Staffs. for details.)  
**TRENTHAM GRAVEL CO., LTD.**, Lordley Quarries, Willoughbridge, near Market Drayton, Salop. (Tel.: Pipe Gate 304/5.) All sizes crushed or natural washed sand. Twice-washed sharp concreting sand. Plastering sand. Plant capacity: 2,000 tons per day.  
**WELFORD GRAVELS, LTD.**, Head Office: Goldington, Bedford. (Tel.: 4587/8/9.) Local 2119 and 2195. Chorley 3923 and Wigan 82039.  
**WITHERS LIMESTONE, LTD.**, Black Lane Quarry, Carnforth. (Tel.: Carnforth 327.) Graded limestone aggregate to B.S.S., all sizes. Immediate delivery ex stock.  
**X.L. GRANITE (INGLETON), LTD.**, Head Offices: Clapham, via Lancaster. (Tel.: Clapham 318/9.) Works Tel.: Ingleton 231. All sizes and gradings of Ingleton granite aggregate.

## LEICESTERSHIRE

**BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD.**, near Leicester. (Tel.: Coalville 1226 7/8; or London Office: VIGILANT 2530.) Best Leicestershire grey granite, dry and coated gradings to any specification, cold asphalt and wet mix. Prompt rail/road delivery.  
**CLIFFE HILL GRANITE CO., LTD.**, Markfield, near Leicester. (Tel.: Markfield 561/2/3.) Granite aggregates to B.S.S. All sizes. Tared and bituminous granite, concrete slabs and kerbs. Transit-mixed concrete.  
**DUSTON STONE QUARRIES, LTD.**, New Duston, Northampton. (Tel.: Brixworth 278 and 298; Duston 505.) (See Northamptonshire.)  
**ENDERBY AND STONEY STANTON GRANITE CO., LTD.**, 21 New Walk, Leicester. (Tel.: 56682.) Quarries at Enderby. London Offices: 29 Dorset Square, N.W.1. (Tel.: Amb. 1141.)  
**GRAVEL HILL SAND AND QUARRIES, LTD.**, Prior Park, Ashby-de-la-Zouch. (Tel.: Ashby 79.) Works: Hartshorne, Derbs. Yellow screened plastering and building sand, all to B.S.S.  
**HILTON GRAVEL, LTD.**, Hemington Fields, near Shardlow, Derby. (Tel.: Shardlow 266.)  
**HOVERINGHAM GRAVEL CO.**, Hoveringham, Nottingham. (Tel.: Louth 3171—15 lines.) (For details, see Nottinghamshire.)

## LEICESTERSHIRE

**MOUNTSOREL GRANITE CO., LTD.**, 21 New Walk, Leicester. (Tel.: 56682.) Quarries at Mountsorel, near Loughborough. Main pink granite a specialty. London Office: 29 Dorset Sq., N.W.1. (Amb. 1141.)  
**WANLIP GRAVELS, LTD.**, Wanlip Road, Syston, Leicester. Any size or grading, scientifically balanced ballast, all to B.S.S. (Tel.: Syston 2327 and 2797.)  
**WELFORD GRAVELS, LTD.**, Head Office: Goldington, Bedford. (Tel.: 4587/8/9.) (See Northamptonshire.)  
**WREAKE VALLEY GRAVELS CO., LTD.**, Melton Howbray. (Tel.: Pits—Rotherby 205 or head office Melton 2488.) All grades washed aggregates and sand.

## LINCOLNSHIRE

**CONINGSBY SUPPLY CO., LTD.**, Registered Office: The Broadway, Woodhall Spa, Lincs. (Tel.: Woodhall Spa 3150.) Screened limestone, hardcore, pitching, filling, flint, hoggin, Ex quarries or delivered.  
**DOW-MAC (PRODUCTS), LTD.**, Tallington, Stamford. All grades of washed sand and gravel. (Tel.: Market Deeping 2301.)  
**EAST MIDLANDS BUILDERS' SUPPLY CO.**, 21 Castle Dyke West, Barton-on-Humber, Lincs. (Tel.: Barton 2189.) All grades washed sand and gravel, road stone, hardcore, washed silica sand.  
**HARTSHOLME GRAVEL AND SAND CO., LTD.**, Hartsholme Wood, Doddington Road, Lincoln. Sole selling agents: Hartsholme Sales, Ltd., 17 West Parade, Lincoln. (Tel.: Lincoln 23391.)  
**HOVERINGHAM GRAVEL CO.**, Hoveringham, Nottingham. (Tel.: Louth 3171—15 lines.) (For details, see Nottinghamshire.)  
**HURDIS, J. W. LTD.**, Victoria Street, Grimsby. (Tel.: Grimsby 3657) and Caistor. (Tel.: Caistor, Lincs. 281.) Building, plastering, concreting sand, also gravel, ballast, hoggin and roadmaking materials.  
**PETINBOUGH QUARRIES, LTD.**, Sandvins, Masey, Peterborough. (Tel.: Market Deeping 2355—3 lines.) Quarry at Rossley, all grades of hardcore and broken stone. (See also Northants.)  
**POLLARD, C. AND SON (TALLINGTON), LTD.**, Walk House, Langtoft, Peterborough. (Tel.: a Tallington, near Stamford, Lincs. (Tel.: Market Deeping 2140.) All grades washed sand and aggregates, or for supply of ready mixed concrete, phone Market Deeping 3132.  
**TRENTFORD GRAVELS, LTD.**, Head Office: Deansgrange, Grimsby. (Tel.: Grimsby 5354.) Washed and graded gravel and sand, roadstone, hardcore, slag, etc. ashes, etc. Pits and quarries throughout the county.

## LONDON

**BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD.**, near Leicester. (Tel.: Coalville 1226 7/8; or London: VIGILANT 2530.) (For details, see Leics.)  
**COX, W. AND SONS, LTD.**, 33 Southampton Way, Camberwell, S.E.5. (Tel.: Rodney 2251—3 lines.)  
**DANGERFIELD, F. J. AND CO., LTD.**, 261A Finchley Road, London, N.W.3. (Tel.: HAMSTEAD 8044/8.) Gravel, limestone or slag, coated or dry, all sizes and pitching, granite kerb and setts, felspar quartz and other minerals by road or rail or ex London stock.  
**DORSET LIMESTONES, LTD.**, Bumpers Lane, Easton, Portland, Dorset. (Tel.: Portland 2207/8.) (For details, see Dorset.)  
**DRINKWATER, W. W. (WILLESDEN), LTD.**, Ducker Hill Lane, Willesden, N.W.10. (Tel.: GLADSTONE 6400/5.) Pits: Rush Green, Denham, Bucks. (Tel.: Denham 2241/2/3.) Also Staines Road, Hounslow, Middx. (Tel.: Hounslow 622/3.)  
**GABRIEL, C. LTD.**, Palmers Lane, Enfield, Middx. (Tel.: HOWARD 4351/2/3.) Washed aggregates and building sand. Pits at Enfield and Hertford.  
**GREENHAM SAND AND BALLAST CO., LTD.**, Pits at Hounslow, Feltham and Staines. Concrete aggregates, plastering and building sand.  
**HALL AND CO., LTD.**, Chantry House, Eccleston Street, Sloane, S.W.1. (Tel.: Sloane 7122.) and at Dulwich, Poplar and Wandsworth. Gravel aggregates, concreting, plastering and building sand.  
**KEEN, W. J. AND SONS**, 18 Granville Road, Epping, Essex. (Tel.: Epping 2520.) All sands, ballast, shingle, suppliers. Pits at Bedmont, near Epping, Essex. (Tel.: Hainault 6111/2/3.)  
**LONDON BALLAST CO., LTD.** (Tel.: Paddington 5064.) 55A Porchester Terrace North, Paddington, W.1.  
**READ, P. T., LTD.**, Gales Gardens, Bethnal Green, E.2. (Tel.: Shoreditch 9128/9.) All sands, ballast and shingle supplied and delivered, also ready mixed concrete. Pits: Fairlop Airfield, Forest Road, Ilford, Essex. (Tel.: Hainault 6111/2/3.)  
**ROADS RECONSTRUCTION (1934), LTD.**, Stockton Lane, West Drayton, Middlesex. (Tel.: West Drayton 3041.) All sizes broken limestone, etc. and coated to British Standards.

## MERIONETHSHIRE

**SALOP SAND AND GRAVEL SUPPLY CO.**, Admaston, Wellington. (Tel.: 961.) Salop.

## MIDDLESEX

**CROSS, GEO. C. AND CO., LTD.**, Uxbridge Road Southall. (Tel.: Southall 2264/5/6.) Concrete aggregates, hardcore, excavations, demolitions.  
**DRINKWATER, W. W. (WILLESDEN), LTD.**, Staines Rd., Hounslow Mtn., Middx. (Hounslow 622/3.)  
**GABRIEL, C. LTD.**, Palmers Lane, Enfield, Middx. (Tel.: HOWARD 4351/2/3.) Washed aggregates and building sand. Pits at Enfield and Hertford.  
**GREENHAM SAND AND BALLAST CO., LTD.**, Chertsey Road, Feltham. (Tel.: Feltham 2285/7.) Pits at Hounslow, Feltham and Staines. Concrete aggregates, plastering and building sand.  
**GRUNDON, S.**, 9 Harrington Road, Hillingdon, Middx. (Tel.: Uxbridge 4156.) Sand, ballast, shingle, hardcore, ashes, excavation and demolition.  
**HALL AND CO., LTD.**, Chantry House, Eccleston Street, S.W.1. (Tel.: Sloane 7122.) and at Dulwich, Poplar and Wandsworth. Gravel aggregates, concreting, plastering and building sand.  
**LONDON BALLAST CO., LTD.** (Tel.: Paddington 5064.) 55A Porchester Terrace North, Paddington, W.1.  
**READ, P. T., LTD.**, Gales Gardens, Bethnal Green, E.2. (Tel.: Shoreditch 9128/9.) All sands, ballast and shingle supplied and delivered, also ready mixed concrete. Pits: Fairlop Airfield, Forest Road, Ilford, Essex. (Tel.: Hainault 6111/2/3.)

# CONTRACTORS' GUIDE TO AGGREGATES

## MIDDLESEX

**STUART MACEY, LTD.**, Gordon Road, High Wycombe. (Tel.: High Wycombe 2591/2.)

**HAMES SAND AND GRAVEL CO., LTD.**, Fordbridge Road, Shepperton. (Tel.: Walton-on-Thames 23616.) Gravel aggregates, concreting, plastering and building sand.

**WAYSURBY SAND AND GRAVEL CO., LTD.**, Pits at Waysbury. (Tel.: Waysbury 164.) Gravel aggregates, concreting, plastering and building sand.

## MID-WALES

**BINGRY AND SONS, LTD.**, Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)

**NASH ROCKS STONE AND LIME CO., LTD.**, Presteigne, Radnor. (Tel.: Presteigne 352.) (See Herefordshire for details.)

**OLD RADNOR TRADING CO., LTD.**, Quarries in Radnorshire. (Kington 11.) (See Herefordshire.)

**SALOP SAND AND GRAVEL SUPPLY CO.**, Admaston, Wellington (Tel. 961), Salop.

**TERN HILL SAND AND GRAVEL CO., LTD.**, Alington Quarries, near Market Drayton, Staffs. (Tel.: Hales 261/2/3.) (See Staffs. for details.)

## MONMOUTHSHIRE

**IN-SITU CONCRETE, LTD.**, Victoria Works, Ebbw Vale (Tel. 3032), and Phoenix Works, Cardiff (Cardiff 6331), for limestone and slag aggregates, ready-mixed concrete, tarmacadam, media, filling, etc., kerbs and pavings.

**MONMOUTHSHIRE ASSOCIATED QUARRIES, LTD.**, Head Office: 38, Hepworth Road, Newport, Mon. (Tel.: Newport 58311/2.) Suppliers of all grades of concrete aggregates, road metalling, pitching stone, tarmacadam and bituminous macadam in limestone, dolomite and blue pennant stone. Quarries throughout the county.

**WHITELIFF QUARRIES AND BRICKWORKS, LTD.**, Coleford, Glos. (Tel. 3158/9.) (See Gloucestershire.)

## MONTGOMERYSHIRE

**NASH ROCKS STONE AND LIME CO., LTD.**, Presteigne, Radnor. (Tel.: Presteigne 352.) (See Herefordshire for details.)

**SALOP SAND AND GRAVEL SUPPLY CO.**, Admaston, Wellington (Tel. 961), Salop.

## NORFOLK

**BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD.**, near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

**JOHNSON, P. C. H., LTD.**, Station Road, Terrington St. Clement, near King's Lynn. (Tel.: Terrington St. Clement 248.) Washed and screened gravel, roadstone, washed sharp and fine sands.

**WITTERTON STONE QUARRIES, LTD.**, Pix Farm Lane, Hemel Hempstead, Herts. (Tel.: Berkhamstead 1208/9.) Suppliers of all grades limestone aggregates, building sand.

**HORPE GRAVEL PITS, LTD.**, Harvey Lane, Norwich. (Tel.: Norwich 332434.) Washed and graded aggregates, stone and gravel delivered to all parts of Norfolk and Suffolk.

## NORTHAMPTONSHIRE

**AMEY'S AGGREGATES, LTD.**, Lower Wootton, Boars Hill, Oxford. (Tel.: Oxford 35421—10 lines.) Pits at Dry Sandford, near Abingdon, Sutton Courtenay, near Abingdon. (Tel.: Sutton Courtenay 275.) Theale, near Reading. (Tel.: Theale 358.) Dorchester, Oxon. (Tel.: Clifton Hampden 236.) Billing, Northampton. (Tel.: Cogenhoe 464) for washed and graded aggregates to B.S.S.

**BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD.**, near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

**BICESTER STONE CO., LTD.**, Stratton Audley, Bicester, Oxon. (Tel.: Stratton Audley 238.) Manufacturers and suppliers of all grades limestone tarmacadam, dry, pitching stone, hardcore, etc.

**BILLING GRAVEL CO., LTD.**, Station Road, Billing, Northampton. (Tel.: Cogenhoe 219.) London Office: 23 Berkeley Square, W.1. (Tel.: Mayfair 6341.)

**RAYBROOK, E. W., LTD.**, Newton Road, Higham Ferrers, Northants. (Tel.: Rushden 3344 and 3345.) All grades of washed and graded aggregates to B.S.S., building sand, hardcore.

**DOUGLAS (PRODUCTS), LTD.**, Tillingham, Stamford. All grades of washed sand and gravel. (Tel.: Market Deeping 2301.)

**DUSTON STONE QUARRIES, LTD.**, New Duston, Northampton. (Tel.: Brixworth 278 and 298; Duston 505.) Producers of building and walling stone, roadstone, hardcore, broken stone, ashes, sand, gravel and hoggins. Immediate delivery throughout Northamptonshire.

**HERRISAND AGGREGATES, LTD.**, Northampton Road Quarries, Rushden, Northants. (Tel.: Rushden 2354/5.) Largest producers in the county of all grades of high-quality concrete aggregate to B.S.S. Delivers throughout Northamptonshire and adjoining counties.

**HOVERINGHAM GRAVEL CO.**, Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) (For details, see Nottinghamshire.)

**KETTON STONE CO.** (Prop. Andrew's Garage), Ketton, near Stamford. (Tel.: Ketton 206.) Hardcore, roadstone, crushed stone, top soil, silica clay. Quarries at Ketton.

**MACKNESS, J., LTD.**, Ransome Road, Northampton. (Tel.: Northampton 589.) Producers of all grades of washed aggregates. Building sand, Mortar (lime/sand mortar). Prompt deliveries.

**ONE BARGE AND LIGHTER CO., LTD.**, Market Chambers, Peterborough. (Tel.: 5934/5.) and Ship End Quarries, Wansford, near Peterborough. (Tel.: Wansford 384/5.) Roadstone, hardcore, broken stone, ballast, ashes, silica clay and sand.

**NEWARK (PETERBOROUGH) SAND AND GRAVEL CO., LTD.**, 127 Eastfield Road, Peterborough. (Tel.: Peterborough 2091.) All grades washed and screened gravel and sand.

**PETERBOROUGH QUARRIES, LTD.**, Sandylands, Maxey, Peterborough. (Tel.: Market Deeping 2355.) Eight quarries supplying all grades of hardcore and broken stone. Also Wetmix at Yarwell, Wansford. All grades gravel and sand at Maxey.

## NORTHAMPTONSHIRE

**POLLARD, C., AND SON (TALLINGTON), LTD.**, Walk House, Langtoft, Peterborough. (Tel.: Market Deeping 2140.) (See Lincolnshire for details.)

**STORTON, F., LTD.**, Weedon Road, Northampton. (Tel.: Northampton 3358.) Producers of washed gravel and sand to B.S.S.

**WELFORD GRAVELS, LTD.**, Head Office: Goldington, Bedford. (Tel.: 4887/8/9.) Largest producers of all grades of washed aggregates in Northamptonshire and Bedfordshire. Regular deliveries anywhere. Local office and pits: Forty Ford. (Tel.: Welford 256.)

## NORTH WALES

**CAWOOD, WHARTON AND CO., LTD.**, Pistyll Gwyn Quarry, Llanarmon, near Mold. (Tel.: Llanarmon-y-n-lai 27.) Crushed limestone and tarred macadam, all grades.

**CHESTER AND NORTH WALES TARRED MACADAM CO., LTD.**, Llanarmon, near Mold. (Tel.: Llanarmon-y-n-lai 43.) Hard, broken limestone, and coated to B.S.S. Inquiries to Registered Office—Market Chambers, Tower Square, Tunstall, Stoke-on-Trent. (Tel.: Stoke-on-Trent 88094.)

**ENSTON BROS.**, Llwyn Isaf Quarry, Clynog Fawr, Caernarvon. (Tel.: Clynog Fawr 297/8.) All sizes crushed, washed natural sand and gravel. Highest quality. Precast concrete products, etc. Griffiths Crossing Factory, Caernarvon. (Tel.: Caernarvon 2535/6.) Crushed granite ex quarry, Pengwern and Gwydyr Quarries, Ltd., Trefriw, Llanwrst, Denbighshire. (Llanwrst 38.)

**PENMAENMAWR AND WELSH GRANITE CO., LTD.**, Quarries at Penmaenmawr. (Tel.: 2256/8.) and at Trevor. (Tel.: Clynogfawr 223.) Caernarvonshire. All sizes and gradings of crushed granite aggregate. Any quantity per day. Immediate delivery ex stock. Coated granite also available.

**RUTHIN AND DENBIGH TARMACADAM CO., LTD.**, Denbigh. (Tel.: Denbigh 75.) Lime, limestone, carbonate of lime, tarmacadam, etc. Also inquiries to Lunt Bros., Ltd., 23 Colmore Row, Birmingham. (Tel.: Central 7408—4 lines.) and Lunt Bros., Ltd., Storbirchall. (Tel.: 201—5 lines.)

**TERN HILL SAND AND GRAVEL CO., LTD.**, Alington Quarries, near Market Drayton, Staffs. (Tel.: Hales 261/2/3.) (See Staffs. for details.)

## NOTTINGHAMSHIRE

**AIZLEWOOD, DOUGLAS E.**, Bow Bridge, Rotherham. (Tel.: Rotherham 2622.) Crushed and graded limestone, all grades of washed gravel and sands.

**BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD.**, near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

**GLEN QUARRIES, LTD.**, Central Chambers, Wellgate, Rotherham. (Tel.: Rotherham 5223.) Crushed and graded stone, concrete sand, building sand, plastering sand and crushed gravel; could be collected ex quarry or delivered.

**HOVERINGHAM GRAVEL CO.**, Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) Quarries at Hoveringham, Holme, Pierpoint Colwick, Bleasby and Newark. All grades of washed gravel and sand to all specifications. Haddon, foamed slag blocks for surface dressing of roads a speciality. Plant capacity 8,000 tons per day.

**NEWARK GRAVEL AND CONCRETE CO., LTD.**, Grove Street, New Balderton, Newark, Notts. (Tel.: Newark 401.) All grades washed sand and aggregates.

**NORTH NOTTS GRAVEL CO., LTD.**, Bellmoor, Retford, Notts. (See Yorkshire.)

**PRESTWICK, WILLIAM, AND SONS, LTD.**, Dronfield, Derbyshire. (Tel.: 2204—6 lines.) Dry and coated Derbyshire limestone and slag for all purposes and to all specifications. Haddon, foamed slag blocks.

**SALISBURY AND WOOD, LTD.**, Matlock. (Tel.: 272/273.) (For details, see Derbyshire.)

## OXFORDSHIRE

**AMEY'S AGGREGATES, LTD.**, Lower Wootton, Boars Hill, Oxford. (Tel.: Oxford 35421—10 lines.) Pits at Dry Sandford, near Abingdon, Sutton Courtenay, near Abingdon. (Tel.: Sutton Courtenay 275.) Theale, near Reading. (Tel.: Theale 358.) Dorchester, Oxon. (Tel.: Clifton Hampden 236.) Billing, Northampton. (Tel.: Cogenhoe 464) for washed and graded aggregates to B.S.S.

**BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD.**, near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

**BENGRI AND SONS, LTD.**, Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)

**BICESTER STONE CO., LTD.**, Stratton Audley, Bicester, Oxon. (Tel.: Stratton Audley 238.) Manufacturers and suppliers of all grades limestone tarmacadam, dry, pitching stone, hardcore, etc.

**CURTIS, J., AND SONS, LTD.**, Botley Works, Oxford. (Tel.: Oxford 41081/2/3.) Sand and all grades of washed aggregates. Pits at Radley, near Abingdon. (Tel.: Abingdon 441.)

**DANGERFIELD, F. J., AND CO., LTD.**, 261A Finchley Road, London, N.W.3. (Tel.: HAMstead 8044/8.) For all road aggregates, kerbs, setts. (See London.)

**DIX, G. H., AND SON, LTD.**, Freeland, Oxon. (Tel.: Freeland 234.)

**DUSTON STONE QUARRIES, LTD.**, New Duston, Northampton. (Tel.: Brixworth 278 and 298; Duston 505.) (See Northamptonshire.)

**GRUNDON, S. (EWELEME), LTD.**, Eweleme, Oxon. (Tel.: Eweleme 20.) London Office (Tel.: Uxbridge 1156.) All grades washed aggregates. Path hoggins, broken stone, building sand.

**HAINES, H. (WITNEY), LTD.**, Oxford Road, Witney. (Tel.: Witney 42.) All grades washed aggregates, hardcore, pitching and broken stone, Cotswold building and walling stone.

**SNETTERTON STONE QUARRIES, LTD.**, Pix Farm Lane, Hemel Hempstead, Herts. (Tel.: Berkhamstead 1208/9.) Roadstone, Cotswold building and walling stone.

**WAYSURBY SAND AND GRAVEL CO., LTD.**, Theale, Reading, Berks. (Tel.: Theale 373.)

## RADNORSHIRE

**BENGRI AND SONS, LTD.**, Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)

## RADNORSHIRE

**CLEE HILL TRANSPORT AND ROLLING CO., LTD.**, Ludlow, Salop. (Cleehillstone 284.) (See Shrops.)

**NASH ROCKS STONE AND LIME CO., LTD.**, Presteigne, Radnor. (Tel.: Presteigne 352.) (See Herefordshire for details.)

**OLD RADNOR TRADING CO., LTD.**, Quarries in Radnorshire. (Tel.: Kington 11.) (See Herefordshire.)

**SALOP SAND AND GRAVEL SUPPLY CO.**, Admaston, Wellington (Tel. 961), Salop.

## RUTLAND

**HOVERINGHAM GRAVEL CO.**, Hoveringham, Nottingham. (Tel.: Lowdham 3171—15 lines.) (For details, see Nottinghamshire.)

**KETTON STONE CO.** (Prop. Andrew's Garage), Ketton, near Stamford. (Tel.: Ketton 206.) Hardcore, roadstone, crushed stone, top soil, silica clay. Quarries at Ketton.

**PETERBOROUGH QUARRIES, LTD.**, Sandylands, Maxey, Peterborough. (Tel.: Market Deeping 2355.) Quarry at Grestham, all grades of broken stone and hardcore. (See also Northamptonshire.)

**POLLARD, C., AND SON (TALLINGTON), LTD.**, Walk House, Langtoft, Peterborough. (Tel.: Market Deeping 2140.) (See Lincolnshire for details.)

## SCOTLAND

**KEIR AND CAWDER, LTD.**, Kirkintilloch Road, Bishopbriggs. (Tel.: Bishopbriggs 3200.) All grades washed sand and gravel aggregates.

## SHROPSHIRE

**BALLIDON QUARRIES, LTD.**, Ballidon, near Ashbourne, Derbyshire. (Tel.: Parwich 201 and 202.) Clean and graded dry limestone to B.S.S., all sizes, coated limestone to B.S. 802 and 1621 and wetmix; large output; reliable deliveries.

**BENGRI AND SONS, LTD.**, Longmoor, Kingsland, Leominster, Herefordshire. (Tel.: Kingsland 301/4.) (See details under Herefordshire.)

**CLEE HILL TRANSPORT AND ROLLING CO., LTD.**, Ludlow, Salop. (Tel.: Cleehillstone 284.) Granite stone, tarmac, chippings, filter media, setts, limestone, crushed and walling stone, gravel, sand, hardcore and ashes.

**DUNNING AND SON, LTD.**, Haughmond Quarry, near Shrewsbury. (Tel.: Upton Magna 286/7.) All grades of high-quality roadstone, concrete aggregates and coated macadam. All to B.S.S. Any tonnage available for immediate delivery.

**NASH ROCKS STONE AND LIME CO., LTD.**, Presteigne, Radnor. (Tel.: Presteigne 352.) (See Herefordshire for details.)

**OLD RADNOR TRADING CO., LTD.**, Kington. (Tel.: 11.) (See Herefordshire.)

**SALOP SAND AND GRAVEL SUPPLY CO.**, Admaston, Wellington (Tel. 961), Salop.

**TERN HILL SAND AND GRAVEL CO., LTD.**, Alington Quarries, near Market Drayton, Staffs. (Tel.: Hales 261/2/3.) (See Staffordshire for details.)

**TRENTHAM GRAVEL CO., LTD.**, Lordley Quarries, near Loughborough, near Market Drayton, Salop. (Tel.: Pipe Gate 304/5.) All sizes crushed or natural washed gravel. Twice washed sharp concrete sand. Plastering sand. Plant capacity: 2,000 tons per day.

## SOMERSET

**ASHAM QUARRY CO., LTD.**, Chantry, Frome. (Tel.: Frome 351.) All sizes limestone block, broken and aggregates. Tarred and bituminous macadam to B.S. Ex quarry and delivered.

**DANGERFIELD, F. J., AND CO., LTD.**, 261A Finchley Road, London, N.W.3. (Tel.: HAMstead 8044/8.) For all road aggregates, kerbs, setts. (See London.)

**GILSON, S. C., AND SONS, LTD.**, Holcombe, near Bath. (Tel.: Stratton-on-the-Avon 243.)

**HALL AND CO., LTD.**, Longmoor House, Ashton Vale Road, Bristol, 3. (Tel.: 63001.) Gravel aggregates, concreting, plastering and building sand.

**ROAD RECONSTRUCTION (1934), LTD.**, Stoneleigh House, Frome. (Tel.: Frome 2361.) All sizes broken limestone, dry and coated, to British Standards. Precast concrete products.

**WAINWRIGHT, JOHN, AND SONS, LTD.**, Shepton Mallet. (Tel.: Shepton Mallet 2366/7.) All sizes ballast, coated ballast, concrete aggregates, filtering media, building blocks and slabs.

## SOUTH SCOTLAND

**ESK MANUFACTURING CO., LTD.**, Carlisle. (Tel.: Carlisle 2-4941.) (For details see Cumberland.)

## SOUTH WALES

**IN-SITU CONCRETE, LTD.**, Victoria Works, Ebbw Vale (Tel. 3032), and Phoenix Works, Cardiff (Cardiff 6331), for limestone and slag aggregates, ready-mixed concrete, tarmacadam, media, filling, etc., kerbs and pavings.

**PENMAENMAWR AND WELSH GRANITE CO., LTD.**, 18 Quay Street, Cardiff. (Tel.: 20646/7.) All sizes and gradings of crushed granite aggregate from old Cardiff and Swansea Dock Deposits. Dolomite aggregates from Eweny Quarry, Bridgend. (Tel.: Bridgend 3786.) Coated stone also available.

**SESSIONS AND SONS, LTD.**, West Dock, Cardiff. Producers of coarse and fine aggregates, dredged and graded to British Standards, Braggins, Swansea. (Also Gloucester and Hereford.)

**SOUTH WALES SAND AND GRAVEL CO., LTD.**, Head Office: P.O. Box 8, Beaufort Buildings, Swansea. (Tel.: Swansea 53071.) Sand and gravel merchants, builders' merchants, Pennant Quarry owners, slag, hardcore, ashes, filling, graded clinker, filter media, Deposits: Cardiff, Newport, Barry, Port Talbot, Briton Ferry, Swansea, Llanelly.

## STAFFORDSHIRE

**BALLIDON QUARRIES, LTD.**, Ballidon, near Ashbourne, Derbyshire. (Tel.: Parwich 201 and 202.) Clean and graded dry limestone to B.S.S., all sizes, coated limestone to B.S. 802 and 1621 and wetmix; large output; reliable deliveries.

**BARDON HILL QUARRIES (ELLIS AND EVERARD), LTD.**, near Leicester. (Tel.: Coalville 1226/7/8; or London: VIGILANT 2530.) (For details, see Leics.)

**CROXEN GRAVEL, LTD.**, Chesdale, Stoke-on-Trent, Staffs. (Tel.: Tean 393.) Manchester. Office: Blackfriars 3766/7. Plant capacity, 2,000 tons per day.



# CONTRACTORS' GUIDE TO AGGREGATES

## STAFFORDSHIRE

**DUNNING AND SON, LTD.**, Wood End Gravel Pits, Hednesford. (Tel.: Hednesford 302/325.) Washed sand and gravel. All to B.S.S. High-quality roadstone, concrete aggregates and coated macadam from our Haughmond Quarry, near Shrewsbury. (See Shropshire.)

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**HILTON GRAVEL, LTD.**, Cheadle, Staffs. (Tel.: Tean 241.) Also at Longton, Stoke-on-Trent (Tel.: Longton 32196) and Stretton, Burton-on-Trent (Tel.: Burton 6061).

**HULLAND GRAVEL CO., LTD.**, Cheadle, Stoke-on-Trent. (Tel.: Cheadle 2323/4, 2119 and 2195.) Manchester Office: 464 Wilbraham Road, Chorlton, Manchester, 21 (Tel.: Chorlton 2274/5.)

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**MACLAREN BROS. (KENNETT), LTD.**, Station Road, Kennett, Cambs. (Ketterford 333/4.) (See Cambs.)

**ST. IVES SAND AND GRAVEL CO., LTD.**, 22 The Broadway, St. Ives, Hunts. (Tel.: St. Ives 2441/2/3/4.) (See Huntingdonshire for details.)

**THORPE GRAVEL PITS, LTD.**, Harvey Lane, Norwich. (Tel.: Norwich 33243/4.) (See Norfolk.)

**WEBB, G. CAMBRIDGE**, 35 Magrath Ave., Cambridge. (Tel.: 59966, 53969, 50353 (night)). (See Cambs.)

## SURREY

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**EASTWOODS SALES, LTD.**, Eastwood House, City Road, E.C.1. (Tel.: Clerkenwell 2040.) London: Sand and Ballast Pit, Thorpe, nr. Egham. (Tel.: Egham 3121.) Runfold Sand and Ballast Pit, Runfold, nr. Farnham, Surrey. (Tel.: Runfold 2020.) Producers and distributors of all grades of washed aggregates.

**GILSON, S. C., AND SONS, LTD.**, Holcombe, near Bath. (Tel.: Stratton-on-the-Fosse 243.)

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**HARRIS, M. P., AND CO., LTD.**, West Station Goods Yard, Bexhill (Tel.: 61); Cavendish Place, Eastbourne (Tel.: 3800); Dominion Road, Worthing (Tel.: 8822); Whitbread Lane, Northiam (Tel.: 2211); Station Goods Yard, Haywards Heath (Tel.: 1750); Crawley Road, Horsham (Tel.: 3356). The Horner, Chichester (Tel.: 4181). All grades aggregates, hardcore, clinker, ashes, etc.

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## WARWICKSHIRE

**BALLIDON QUARRIES, LTD.**, Ballidon, near Ashbourne, Derbyshire. (Tel.: Parwich 201 and 202.) Clean and graded dry limestone to B.S.S., all sizes, coated limestone to B.S. 802 and 1621 and wet-mix large output reliable deliveries.

**DUSTON STONE QUARRIES, LTD.**, New Duston, Northampton. (Tel.: Brixworth 278 and 298; Duston 505.) (See Northamptonshire.)

**HALL AND CO., LTD.**, 188 Lichfield Road, Four Oaks, Sutton Coldfield. (Tel.: Four Oaks 356.) Gravel aggregates, concreting, plastering, building sand.

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**BULL, BROS. & SONS, LTD.**, 126A High Street, Winchester. (Tel.: 2264.) (See Hampshire.)

**COKE, T. F. (CHELTENHAM), LTD.**, 267 Gloucester Road, Cheltenham. (Tel.: 4717/4874.) (See Glos.)

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